14776

EX·LIBRIS·COLL·MED·PHILAD·INSTIT·A·D·MDCCLXXXVII·

NON SIBI SED TOTI

Class ______ . No ______

IN EXCHANGE.

Digitized by the Internet Archive
in 2014

https://archive.org/details/annalsofhygiene1188penn

WHOLE No. 1. JULY 15, 1884. VOL. I., No. 1.

THE

Annals of Hygiene.

A Monthly Journal devoted to the Fostering
of Preventive Science and the Preser-
vation of Health.

PRICE, $1.00 PER YEAR. SINGLE NUMBERS, 10 CENTS.

Edited by JOSEPH F. EDWARDS, M. D.,
(ASSISTANT EDITOR MEDICAL AND SURGICAL REPORTER.)

CONTENTS:

[illegible] t in the Nursery 1
Errors in Diet : A Cause of Scrofula . 4
[illegible] of Women and Children . . . 5
[illegible] of Woman as Compared to that of Man, especially in Relation to Marriage 7
[illegible] why Contagious Diseases Attack [illegible] Once 9
D[illegible] of Antimonial Dyes on Cotton [illegible] 10
How to Secure Good Teeth, Prevent [illegible] Decay, etc 11
Sewerage Systems and the Epuration of Sewage by Irrigation and [illegible]ure 12
[illegible] Precautions Against [illegible] . . . 13
[illegible] of Visiting the Sick 14
[illegible] of External Influences upon the Product of Conception 15
The Wet-nurse *vs.* the Bottle 15
Influence of the Public Schools on Brain-building 16
Prevention of Blindness in Infancy . . 17
Renting Infected Houses—Bird *vs.* Greville 18
Evils Resulting from High Heels . . . 18
Influence of the Present System of Education on the Health of the Community 19
Cremation 20
New Sanitary Rules for Circumcision . 21
Monthly Nurses and Infectious Cases . 21
Influence of the Constant Use of High-heeled French Shoes upon the Health and Form of the Female, and upon the Relation of the Pelvic Organs 22
The Laws of Health 24

COLLEGE OF PHYSICIANS
PHILADELPHIA

Office at No. 115 South 7th St., Philadelphia, Pa.

Published by Inquirer Printing Co., Lancaster, Pa.

Announcement of Premiums.

The Editor has started "THE ANNALS OF HYGIENE" with the view of popularizing the knowledge that is so valuable, of instructing the people about the means at their command to enable them to avoid disease and preserve their health.

In order that every person interested in the subject may be induced to constitute himself an agent for the dissemination of this knowledge, the editor has concluded to offer the following valuable premiums.

FOR EVERY 1000 SUBSCRIBERS.

1. A handsome Horse, Buggy, and Harness. The Horse to be under nine years of age, and guaranteed safe and sound in every particular. The Buggy and Harness to be made by reliable manufacturers. Or,
2. A handsome new Piano.

FOR EVERY 500 SUBSCRIBERS.

1. A handsome Horse, under nine years of age, guaranteed safe and sound. Or,
2. A handsome second-hand Piano in good condition.

FOR EVERY 400 SUBSCRIBERS.

A handsome Buggy.

FOR EVERY 300 SUBSCRIBERS.

A handsome suit of Parlor Furniture, upholstered with the finest raw silk.

FOR EVERY 200 SUBSCRIBERS.

1. A handsome Hunting-case Gold Watch. Or,
2. A fine Sewing Machine, with all the latest improvements. Or,
3. A handsome Parlor Organ.

FOR EVERY 100 SUBSCRIBERS.

1. A handsome Silver Watch. Or,
2. A neat suit of Bed-room Furniture made of Walnut.

FOR EVERY 50 SUBSCRIBERS.

ANY ONE OF THE FOLLOWING:

1. A handsome suit of Bed-room Furniture made of Ash.
2. A Lawn Mower.
3. A handsome Trunk.
4. A decorated China Breakfast Service.
5. A decorated China Dinner Service.

(CONTINUED ON THIRD PAGE OF COVER.)

COLLEGE OF PHYSICIANS OF PHILADELPHIA

The Annals of Hygiene.

VOL. I. PHILADELPHIA, JULY 15, 1884. NO. 1.

MILK *VS.* MEAT IN THE NURSERY.

The *London Medical Times* says: Milk is, doubtless, of all articles of diet the most valuable and the most abused—abused, that is, in the sense of being violated as to quality. For all practical purposes the milk-supply of our own, as of most civilized countries, is derived exclusively from the cow; for the well-meant efforts of the British Goat Society have not yet attained that measure of success which they deserve, and which would justify us in reckoning goat's milk as a common article of consumption amongst that large class to whom the "poor man's cow" is unfortunately an unknown or an unappreciated blessing. The true story of the treatment and distribution of our milk is a strange and a somewhat disheartening one. In itself a nutritious, satisfying, all-sufficing food, milk is at once the hope and the despair of the modern food reformer. The inhabitants of large cities must not expect to obtain it both good and cheap; they are fortunate if it can be bought pure, fresh, and at a reasonable rate. On the other hand, there are large "country districts" in England where milk is rarely or never drunk by the peasant classes. These anomalies and disappointments are dependent on the source whence the milk is derived, as well as on the vicissitudes to which it is subjected in virtue of its position as a perishable article of commerce. Its natural quality and composition differ considerably according to the breed of the animal which yields it; and if the public, or individuals, prefer and demand milk of a particular appearance, the dairyman or the purveyor is tempted to secure this by artificial means; and in such a case adulteration may be said to be initiated and fostered by the caprice, or ignorance, or want of reasonableness of the consumer.

Normal physiological processes in the cow produce corresponding changes in the mammary secretion. For some days after calving the milk acts as a drastic purgative upon the young child, as on the calf; and every two or three weeks, at the periods of recurrent œstral excitement, the milk is distinctly affected in character for a few days, after which it is again furnished of its usual quality, but in somewhat lessened quantity. And although the average quality of the daily yield of a large herd of cows may vary but slightly, it must be remembered that the milk of but two or three animals goes into each can, and that it is exceptional for the whole milking from all of them to be mixed together before it is placed in the cans and sent out for distribution. The quality and kind of food supplied to the animal produce effects which are

14776

often sufficiently noticeable in the taste and appearance of the milk and the butter. Brewers' grains, which are largely used by cow-keepers—especially by those in towns—increase the yield of milk, but make it thin and white. Some years ago a cow-keeper in a university town stated that he had given up the use of grains because, although they greatly increased the flow of milk, yet when his cows were fed on good hay and roots the milk not only kept better, but would "carry more than twice as much water." General disease, bad condition, and local disease and injuries of the udder, are other important factors in determining the quality of the milk produced. But supposing the animal to be in perfect health and condition, and that every precaution has been used to ensure cleanliness during the milking, several other conditions must be observed if the consumer is to obtain the best possible value for his money. Not the least important of these is the maintenance of a proper temperature.

When drawn from the udder, milk has a temperature of about 100° F.; that most conducive to its preservation in good condition is about 50° F. A higher temperature, as that of the air in warm summer weather; or a colder, as during the frosts of winter—but especially sudden and repeated variations—are prejudicial. It is obvious that this implies elaborate and intelligently supervised arrangements for icing or for heating during transit, to which most of the railway-borne milk, contracted for from small and scattered country farms, is not, and cannot be subjected. It is of course equally necessary that "churning" be prevented during the journey, and this is obviated by filling each can quite full up to the bung or stopper. Another essential of good milk is a rapid and regular distribution of the supply. Under favorable circumstances, milk will doubtless keep "fresh" for a period of seventy hours, or even longer; but it is not benefited by the process, and there can be little doubt that its deterioration has been in progress for some time before it turns distinctly sour. But if the evening's milking is kept until early morning before starting on a long railway journey to the city—a journey performed without any special precaution for regularly maintaining a favorable temperature—the limit of its endurance will have been well-nigh reached by the time it is delivered to the consumer on the morning of the following day; and this result will not be affected by the fact of its having been mixed by the city milkman with some portion of later arrival than itself. It is the custom in some dairies in large towns, to add a small quantity of borax to the milk which they receive; this serves to increase its keeping qualities, and appears to be in no degree harmful; it may easily be imitated by the country housekeeper with decided advantage in hot weather.

See, then, the difficulties which attend, and the precautions which must be taken to ensure an initial supply of pure milk of good quality—having regard to the actual cost of its production, and to the difficulties which attend its collection, storage, transit, and distribution in good condition; and allowing a minimum profit to the farmer, to the contractor, and to the retailer—it is clear that good pure milk, although always a cheap food, can never be an inexpensive article of diet. In other words, what is true of other things is equally true of milk—if it is to be genuine and of first-rate quality, a fair price will have to be paid for it.

That, in this case especially, it is real economy to pay a good price for good value, will not be denied; it is only a matter of regret that the consumption of milk amongst our juvenile population is not greater than it is, and that its purchase is not always regulated by the principle which we have thought well to emphasize. The value of milk *versus* meat, as the staple of young children's food, is strikingly brought out on perusing some statistics lately published by the authorities of the Orphans' Home and Asylum, in New York. Children are admitted from three to eight years of age, and are kept in the institution until twelve years old. The dietary for children under eight years of age, comprises milk and cereals, with vegetables and fruit in suitably varied combinations, but meat and fish are both rigidly excluded. Children over eight years old have meat three or four times a week with their dinner, and at those meals milk is omitted. Under these conditions, the record for the past twenty-five years shows a remarkably low death-rate, and an unusual freedom from disease of all kinds. These happy results are doubtless due in large measure to the superior sanitary arrangements adopted there; but the noticeably small number of cases of derangements of the stomach and bowels which are recorded year by year, can only be explained in reference to the admirably devised bill of fare—plain, nutritious, bountiful, and yet unstimulating—which is so well adapted to the age and wants of the inmates. The year 1865 was the only one during which the children under eight had a meat diet; and in that year—the total number of inmates being 139—it is significant that there occurred 98 cases of stomach disorder (as against 25 only in the previous year with 124 inmates), and a total of five deaths, this number being exactly *one-fourth* of the total deaths recorded during the whole of the 25 years, 1859–82. In comparing the case of such children with that of others, it must not be forgotten that the majority of them are the descendants of those whose condition in life was so unfavorable to health, that they are placed in the Home "already impregnated with the seeds of disease, sown by vice and violation of all sanitary laws." Such a diet cannot but be serviceable to the children of the present age, when adult life is carried on at high pressure, and disturbances of the nervous system are so rife. Not a few men and women may be said to owe their good health and success in life—if not life itself—to such a factor in the regimen of their early years. There is one more point which is too easily ignored to allow of its being passed over in silence. Unfortunate as the inmates of such an Orphan's Home may be in the loss of parental love and care, they are happy in being spared the ingestion of unwholesome and (for their age) indigestible food; and, without being cynical, we may say that, for the child of tender age, there is an inestimable advantage in the absence of the "indulgent parent" who would thoughtlessly tempt it with morsels of meat and other dainties quite unsuited to the capabilities of a digestive system which is still in the earlier stages of its physiological development. Such unkind petting is far too common amongst nurses as well as parents; but the tit-bit from mamma's plate deserves a condemnation as severe as the anathemas which are justly launched against the "sip from papa's glass." Such acts have no true kindness in them: they may afford a selfish indulgence to a thoughtless parent, but for the child they are cruelty, or worse.

ERRORS IN DRESS: A CAUSE OF SCROFULA.

From the *London Med. Times and Gaz.* we note as follows: In the production of all forms of scrofulous diseases there occur a series of factors, in addition to that of hereditary tendency, which may be classed as preventable. The chief of these—foul air and insufficient or inappropriate food—have of late received the lion's share of attention at the hands of the apostles of hygiene; and great changes have been, and are being, made in the domestic life and economy of the poorer classes, which must eventually tend to reduce the formidable array of deaths and diseases due to preventable causes which at present confronts us. But while attention has thus been given to the regulating of the lung and stomach functions of the scrofulously inclined, a third, and almost as important a function, has been allowed to pass with but scanty notice.

The importance of the skin as an excretory organ, and the extent to which its function is daily interfered with, not only by the sickly, but also by the vigorous and strong, are points which claim serious consideration at the hands of physicians and hygienists. In a comprehensive monograph on the subject,* Dr. O. Paulsen, of Hamburg, has undertaken to show the part which errors of dress, and consequent interference with the functions of the skin may take in the production of scrofula, and especially in the scrofulous conditions of the organs of special sense. The large proportion of water which the skin daily excretes has been over and over again observed and noted by physiologists, and the results of artificial suppression of the excretion by enveloping the human body in india-rubber, and the bodies of small animals in an equally impervious coat of varnish, have proved the importance of the function as the regulator of body-temperature. The amount of perspiration from any surface is to some extent a measure of the fulness of the blood vessels supplying it. Influences, therefore, which hinder the occurrence of the sweating must likewise affect the condition of the blood vessels. Such influences are exercised by anything which tends to check the due evaporation of the moisture of the skin. In an atmosphere overcharged or nearly saturated with aqueous vapor, this evaporation is diminished, and the same thing must of necessity happen where the clothing of the body is of such a nature as to prevent evaporation from taking place with sufficient rapidity. In almost all grades of society, the choice of materials for clothing has been determined hitherto more by the dictates of custom, tradition, or present fashion, than by any consideration of furthering or hindering the natural function of the skin. Numerous experiments have been from time to time carried out by von Pettenkofer, Brieger, and others, with a view to determining the relative value of various materials from this point of view. The results obtained prove that the permeability of flannel and woolen stuffs is nearly double that of linen, and more than double that of silk. In confirmation of these, Dr. Paulsen himself conducted a series of experiments by observing the degree of moisture in his own bed during a number of nights, each time being covered with bedclothes of different material. His observations showed that whilst sleeping under a woolen cover the increase of moisture was 5° over that of the external air; under a linen coverlet the increase rose to 12°, and under a feather quilt from 30° to 40°. The excretion of carbonic acid gas he found to be hindered under every form of cover, with the exception of the woolen one. A rise of temperature also was noticed to be produced, and similarly an increased frequency of pulse and respiration was observed. That such conditions are unfavorable from a hygienic point of view, needs no emphasizing. How, then, do they affect those persons predisposed to strumous affections? Depending, as they chiefly do, on disturbed nutrition and insufficient assimilation of food, the circulation in such cases is sluggish, and liable to give rise to congestion in lymphatic channels and glands. With the diminished activity of the vessels of the skin, the increased action of the heart and lungs, and the rise of temperature, this congestion becomes increased, and general nutrition still further interfered with. Regarding the marked tendency which some of the organs of special sense evince to become affected with scrofulous disease, Dr. Paulsen calls attention to the fact that the head and neck being alone uncovered, are liable to extreme sweating, perhaps vicariously, and by the excessive evaporation the vessels of the skin are cooled, and thus congestion of deeper-lying vessels is set up. To what extent this is true, it is difficult to determine; but it is a striking characteristic of all the so-called scrofulous affections of the organs of special sense that they give evidence of imperfect nutrition. In the clothing of babies and young children the claims of the skin for liberty of action are perhaps more flagrantly disregarded than at any other period of life. Not only do children sleep by night for a greater number of hours than adults, often under the most impermeable forms of covering, but even by day an absurd regard for custom frequently condemns them to a casing of various layers of linen and even silk, in which free evaporation is as impossible as its prevention is injurious. That persons of all ages, from babyhood to manhood, may maintain health under such unfavorable hygienic conditions cannot be denied; but that the same conditions are factors in the production and maintenance of those forms of impaired nutrition comprised under the head of scrofula, is equally certain. Hence in the treatment of such cases this factor must always be taken into consideration. In the treatment of scrofulous disease of the nose, ears, and eyes, Dr. Paulsen claims to have obtained success by attention to this element of checked perspiration in numerous cases where the ordinary local and dietetic treatment have failed without it. The means to be adopted are simple. No alteration in the shape or style of clothing need be insisted on; the use of materials through which evaporation can take place, in preference to those through which it cannot, forms the simple and efficient means of avoiding the dangers which a checked perspiration of the skin must always present to those predisposed to scrofulous disease.

---

* "On the Causes and Treatment of Scrofulosis," by Dr. O. Paulsen, Hamburg. Berlin: Aug. Hirschwald. 1883. Pp. 39.

THE CLOTHING OF WOMEN AND CHILDREN.

The experience of every physician will, no doubt, carry out the statement made by Dr. F. J. Van Vorhis before the State Sanitary Society of Indiana, that women and children, take one year with another, furnish three-fourths of all the business done by physicians engaged in the general practice of medicine, and that not less than one-half of this sickness is produced directly and indirectly by changes in temperature and exposure to low temperature, and might be prevented by proper clothing.

The heat of the body, like the heat of a room, can only be produced by combustion. Something must be consumed. In heating your dwellings the thing to be desired, in the interest of economy, is to maintain the requisite temperature by the consumption of as little fuel as possible; first, because fuel is expensive; second, because the wear and tear upon your heating apparatus is less. This can only be accomplished by retaining the heat when produced. Your houses and public buildings are or should be constructed with this object in view.

So it is important in maintaining the normal temperature of the body to do so with as little strain as possible upon the vital processes. It is not only required that there should be sufficient fuel, in the shape of good food, but that the heat produced should not be wasted, at once we have reached the conclusion that clothing as well as food is physiologically a necessity, as well as for ornamentation and to hide the surface of the body.

Insufficient clothing must necessarily result in great waste of animal heat. And notwithstanding this waste may be compensated for by an abundant supply of good food, still there will be an increased draft upon the heat-making processes. The greater the waste the greater the draft, and when a certain point is reached, or if the draft be long continued, the time will come when every available material will be seized upon for consumption to keep up the temperature. Nutrition that should be appropriated to the restoration of tissues will be diverted from this and consumed by the heat-making processes.

The animal heat will be kept up, no difference how great the cost or what the sacrifice demands of other vital processes. After a time the tissues and organs, weakened by the strain and exhausted by the draft, will succumb, and disease will be the result.

The struggle may be protracted more or less, according to the physical powers of the individual, but in the end the result will be the same.

If you have never done so, the next time you visit a Sabbath-school observe how the members of the infant class are dressed. You may find that they have on clothing enough, if it was properly constructed and distributed. Generally, you will find almost all of it about the shoulders. Little girls will have skirts coming down to their knees, and little else but skirts. Below their knees to their ankles often nothing but thin (thick their mothers would say) woolen stockings, then a pair of shoes, and possibly over these a pair of Arctic overshoes. The sight would be ludicrous if it was not so sorrowful! From their ankles to their hips there is almost nothing that is of any value to prevent the waste of animal heat. Skirts hung about their hips are of no value whatever for this purpose. They are all very well and right for ornamentat io Little boys, until they are four or five years old, are dressed in almost the same absurd style, with nothing on their lower limbs below their knees but woolen stockings.

If these children stand it through and escape with their lives until about that age, there is a change. The boy has heavy woolen underclothing and stockings. He gets his first pair of boots and a heavy pair of pants that come down to his instep, together with vest, coat, and overcoat, and altogether he is in a very comfortable condition. But how about the little girls? Visit the day-schools and Sabbath-schools, stand on the street corners and observe the little girls that are from five to twelve years old, children of rich and poor alike, as they pass. Then give your judgment about how many of these little ones, that are to be the future wives and mothers, will ever reach womanhood free from disease.

But how about the mothers themselves; how are they dressed? Let those who are interested make a comparison that will very nearly show the difference between the clothing of a lady and that of a gentleman as they are ordinarily dressed. Call on one of your dry goods merchants, when the thermometer is down about zero, and ask him to show material of the heaviest woolen fabric for a lady's dress. Get a piece of it for a sample and lay it away. On the following summer, when the thermometer stands ninety in the shade, call on your merchant tailor and ask him to show you his lightest woolen fabric for gents' summer wear. Get a piece of that for a sample and take it home and compare it with the other. You will find the fabric for light summer for gentlemen much heavier than the fabric for heavy winter wear for ladies.

If you are not entirely satisfied by the comparison, try this: Call at some general furnishing establishment and ask to see a suit of ladies' heavy underclothing; then ask to see a suit of gents' heavy underclothing. Place them side by side, and the comparison, if you have never thought of it before, will set you to thinking.

It is possible for you to build such a fire in your stove that you can keep the windows and doors of your room all open, and not suffer from cold, but you are almost certain to ruin your stove. Being perfectly warm is not always an indication that you have on sufficient clothing. It is a pleasure to note a commencing reformation in this direction. Women are commencing to dress more suitably, but as yet the barbarous customs with which Dr. Van Vorhis deals are in vogue with children.

THE HEALTH OF WOMAN AS COMPARED TO THAT OF MAN, ESPECIALLY IN RELATION TO MARRIAGE.

We are accustomed to be told by moralizers that our young women are not fit, as a rule, to become mothers, owing to their inferior physical condition, and that not only are they incapable of developing a sturdy, hearty child in the womb, but that they are unfit to properly nourish it after birth. Were this true, in the exaggerated sense in which some croakers claim that it is, we would be compelled to despair for the future of humanity. The nursery of the human race is the womb of woman; the house in which this nursery is found is the body of woman; hence if this body or house were universally unfit to receive and properly care for its inmates, it would be like the dilapidated mansion, that, having served its day as a residence, is given over to the bats, the swallows and the rats. We must confess a disinclination to believe that woman, as a class, is unfit to fulfil the glorious mission that the Almighty has assigned to her; and we are glad to see that so acute an observer as Dr. George Hamilton, of Philadelphia, has expressed the same views in a recent article in the *Medical and Surgical Re-*

porter, of this city. This author tells us that statistics show that more male than female children are still-born, and also that more males than females perish during the first five years of life, chiefly owing to their greater disposition to disease of the brain. As the female approaches womanhood, and for some years after, especially if she marry very young, the chances for health and longevity are to some degree diminished. Taking the entire period of child-bearing, statistics are not in accord as to the comparative mortality; but beyond that period the chances for health and length of days turn strongly in favor of the woman. But this prolonged existence may readily be explained in the fact that not very many women are addicted to the use or abuse of intoxicating liquors —an abuse of a character, as all statistics prove, to cause in men an enormous amount of physical and mental disease. To agencies of another kind are often attributed the unfitness of very many females for the duties and trials of wedded existence. Lecturers and writers upon this subject have, as it were by common accord, placed in this class many of the daughters of wealth and fashion. In this class, as in every other, may be found those who, by inheritance or otherwise, possess feeble constitutions, and who in matrimony may not only incur risk of further injury to the health, but whose offspring may have constitutions similar to those of the mothers. Another class, having good health and constitutions, may, through a constant, protracted course of fashionable dissipation, destroy or greatly impair both, and may thus, so far as matrimony is concerned, be placed in the category alluded to. The number in both classes is, the writer has reason to believe, comparatively small; so small, indeed, as not to justify a general charge against this condition of society, as an appeal to facts may prove.

Let us, for instance, stroll, at certain hours of the day, through that portion of the city which, par excellence, may be regarded as one of the most fashionable and wealthy, having as its centre Rittenhouse Square, and what will at once gratify and attract our attention so much as the numerous groups of children in and about the square, of every age, from the infant of a few months or a year, up to children of, perhaps, eight or ten years? Infants, too young to walk, are being trundled about in all directions, their plump forms, rosy complexions, bright eyes and cheerful looks, giving visible evidence of their excellent health. Others of suitable age are, by direction of intelligent parents, instructed to avoid the coach, and thus bring the muscles of the limbs into action, and thereby increase the appetite and power of digestion, so as to improve the strength and tone of the whole system. When old enough, the children (girls as well as boys) are provided with a variety of implements used in various amusing and healthful games, or with one or other of the many machines now in vogue for rapid and pleasant locomotion. But again, the residences of these children are nearly always large, admitting perfect ventilation, and provided with conveniences that conduce, in no small degree, to the comfort and well-being of the occupants. Another point, greatly advantageous to daughters, from childhood to womanhood, is that, as a rule, the parents are educated and refined, and are, therefore, the better able to discover and carry into effect all that pertains to the physical, intellectual and moral welfare of their children, especially as regards the daughters.

Thus far, it may be said, very good; but, arrived at womanhood, then comes the trial, by entering upon a round of fashionable dissipation that too often attends the social status in view, especially when no incumbent occupation or duties interpose an obstacle. But there is another side to this picture, in the fact that only a part of the time is thus employed, and a very large number of these devotees of fashion spend much of their time in riding in the open air, or, like the ladies of England, in promenading—the best of all exercises. Again, as soon as the season arrives for leaving the city, a very large majority close their houses, repair to their summer homes, or to the almost innumerable places of resort by the seaside, or to situations (in rural sections) noted for their salubrity. Here their enjoyments are, in a great measure, of an active kind, and are thus productive of increased health and strength.

THE REASON WHY CONTAGIOUS DISEASES ATTACK ONLY ONCE.

Professor Tyndall, viewing the question from the modern standpoint, thus explains the immunity obtained against a second attack of a contagious disease: One of the most extraordinary and unaccountable experiences in medicine was the immunity secured by a single attack of a communicable disease against future attacks of the same malady. Small-pox, typhoid, or scarlet fever, for example, was found, as a general rule, to occur only once in a lifetime of the individual, the successful passage through the disorder apparently rendering the body invulnerable. Reasoning from analogy, he ventures to express the opinion that the rarity of second attacks of communicable disease is due to the removal from the system, by the first parasitic crop, of some ingredient necessary to the growth and propagation of the parasite.

The cultivation of micro-organisms which is now everywhere carried on, enables us to realize the smallness of the change which in many cases suffices to convert a highly nutritive liquid into one incapable of supporting microscopic life. Various important essays bearing upon this subject have been recently published in the *Revue Scientifique.* M. Boulsy there draws attention to the results obtained by M. Raulin in the cultivation of the microscopic plant named Aspergillus niger. The omission of potash from Raulin's liquid suffices to make the produce fall to one-twenty-fifth of the amount collected when potash is present. The addition of an infinitesimal amount of a substance inimical to the life of a plant is attended with still more striking results. For example, one part in sixteen hundred thousand of nitrate of silver added to the liquid entirely stops the growth of the plant. And now we come to the important application of this fact, which has been indicated by M. Duclaux. Supposing the Aspergillus to be a human parasite—a living contagium—capable of self-multiplication in the human blood, and of so altering the constitution of that liquid as to produce death, then the introduction into the blood of a man weighing sixty kilogrammes of five milligrammes of the nitrate of silver would insure, if not the total effacement of this contagium, at all events the neutralization of its power to destroy life. An index finger here points out to us the direction which physiological experiment is likely to take in the future. In anticipation of the assault of infective organisms, the experimenter will try to introduce into the body substances which, though small in amount, shall so affect the blood and tissues as to render them unfit for the development of the contagium. And subsequent to the assault of the parasite he will seek to introduce substances which shall effectually stop its multiplication. There are the strongest grounds for hope that in the case of infective diseases generally such protective substance will be found.

DANGERS OF ANTIMONIAL DYES ON COTTON GOODS.

From a German Pharmaceutical journal we learn that much attention has been given to cases of skin poisoning by arsenical dyes; but the fact that antimony may also cause unpleasant symptoms is not so well known. C. Bischoff has recently published a paper in the *Repertorium Anal. Chemie*, in which he says that large quantities of tartar emetic are employed, in combination with tannin, for fixing the aniline dyes upon cotton fabrics. As a rule, the yarn is passed first through a sumac bath, and then through a dye bath containing a solution of tartar emetic. A tannate of antimony is formed, which adheres firmly to the fiber, and serves to mordant the dye upon it. A majority of the better quality of cotton goods, stockings, etc., that are "fast colors," dyed with aniline, at present contain antimony.

Soluble antimonial compounds, especially tartar enemic, when applied to the skin in sufficient quantity, cause itching and inflammation. And although cottons dyed with it are nearly "fast colors," as the antimonial precipitate is so nearly insoluble in water, yet, if the rinsing is not very thoroughly done, considerable tartar emetic may remain in the goods.

A case of skin poisoning from stockings dyed with antimonial compounds actually occurred, and was recently the cause of a lawsuit. Bischoff therefore made an analysis of a number of samples of cotton yarn dyed in this manner, to determine how much antimony could be extracted by water alone, also the total amount of antimony which was extracted with strong hydrochloric acid. The antimony was precipitated as sulphide, and when the quantity was sufficient to be weighed, it was converted into antimoniate of antimony and weighed as such. The quantity found in cotton yarn of different colors was as follows:

	In water. p. c.	In acid. p. c.
1. Bluish purple . .	traces.	0.11
2. Bordeaux red . .	"	0.26
3. Dark purple . . .	0.012	0.12
4. Light garnet . .	traces.	0.24
5. Light blue . . .	"	0.13
6. Dark blue	0.008	0.25
7. Light Bordeaux .	traces.	0.18
8. Bluish purple . .	"	0.10
9. Carmine red . . .	0.008	0.22
10. Dark garnet . . .	traces.	0.244
11. Dark cherry red .	traces.	0.31
12. Reddish brown .	0.0135	0.30
13. Scarlet	0.014	0.20
14. Light blue . . .	traces.	0.036
15. Water blue . . .	"	0.11
16. Orange brown . .	"	0.121
17. Brown purple . .	"	0.20

A long pair of cotton stockings will weigh on an average 60 to 70 grams (2 to 2½ ounces). The maximum quantity of antimony in such a pair would be about one-fourth of a gram, or 4 grains. Only the portion soluble in water is of any physiological importance, and of this there would not be more than one and a-half centigrams.

He also mentions the fact that in three cases goods dyed in antimonial baths have been sent him for examination, on suspicion of containing arsenic.

HOW TO SECURE GOOD TEETH, PREVENT THEIR DECAY, ETC.

Dr. H. E. Bennett thus writes in the *New England Medical Monthly:*

In the discharge of their duties, the physician and dentist are daily asked by their patients, "What must I do to prevent my teeth from decaying?" The answer should be, "Correct your diet." That is, eat such food and only such as contains all of its natural elements. If we eat the products of grain, we must eat them with all of their natural elements. If we eat meat, we must also eat bones or our systems will suffer from a violation of one of Nature's unerring laws. It is conceded that dental decay is the dissolving away of the lime salts by vitiated secretions. This is not due so much to want of cleanliness of the mouth, as is commonly supposed; for it is not true that "a clean tooth never decays." One may devote twelve hours out of the twenty-four to the ablution of the teeth, and fail to prevent decay of the teeth so long as Nature's dietic laws are violated. Acid will dissolve lime whenever the two meet. Acid saliva may be expected to follow an excessive use of acids, or of those elements which are capable of being converted into acids, or from a deficiency of the opposite elements. Dental development in man is discernable as early as the seventh week of intra-uterine life, hence the importance of a strictly correct diet from the first, if mothers desire to give birth to children who may have perfectly-formed teeth; and perfect health *includes* perfect teeth; for they are little indicators that denote by their condition that of the whole system, just as the thermometer indicates thermal changes. A mother who passes through the periods of pregnancy and lactation without a sufficient supply of bone and tooth material in her food will suffer from loss of teeth, neuralgia, rheumatism, and other diseases which result from an impoverished state of a system drained to the utmost. The lime from her teeth will be dissolved, taken into the circulation, and appropriated by the offspring. Excepting *civilized* man, all flesh-eating animals take as much of the bone with the flesh they eat as they can break with their teeth sufficiently fine to swallow, and all have good dental organs. Place before a tribe of Indians everything the earth produces in the shape of food, and they will eat only animal food so long as that lasts; but put them upon a reservation and feed them as civilized people feed themselves, and decay of teeth is sure to follow. Take from any carnivorous animals their supply of bone which nature furnishes with the flesh, and dental decay is the inevitable result. Several years ago the lions in the Zoölogical Gardens of London were fed upon the thighs of horses. These, being large and hard, they were unable to break and eat, and, as a consequence their young were born with cleft palates, and died shortly after birth. Subsequently they were fed upon deer and other small animals, and their young were born with perfectly-formed palates, and lived. Veterinary surgeons have long known that certain diseases of their dumb patients can only be successfully treated by feeding to them bone meal. A dam too aristocratic to gnaw bones, gave birth to successive litters of rickety pups. After being fed with food containing a liberal percentage of bone meal, she produced perfectly healthy ones by the same sire. Even our domestic herbivorous animals thrive better when bone is added to their bill of fare. The cow which every year gives birth to young, suffers from an excessive drain upon her supply of bone material, and craves bone to such an extent that she will try to masticate even very large ones, as every farmer's boy can testify.

Arguments in favor of eating bone to prevent the teeth from decaying, as well as to cure a long catalogue of bone and kindred diseases, might be continued indefinitely; but as "a word to the wise is sufficient," it seems only necessary to add that a long and continued experiment has been made upon a family with results that justify these claims. The bones used were selected from perfectly healthy animals, none being accepted that bore the slightest blemish, carefully cured without being allowed to pass through any perceptible chemical changes, finely granulated and incorporated into soups, gravies, bread, etc., in the proportion of from one to three spoonfuls of each pint of soup, gravy, or flour.

The relative proportion of nutritive elements in one hundred parts of different kinds of animal food have been found as follows: Beef 26, mutton 29, chicken 27, pork 24, brain 20, blood 21, codfish 21, white of egg 14, milk 7, bone 51.

SEWAGE SYSTEMS AND THE EPURATION OF SEWAGE BY IRRIGATION AND AGRICULTURE.

We will be wise in this country if we learn, while our cities are yet young and manageable, so far as size is concerned, from the experience of our older European neighbors, that there is but one proper method of disposing of our waste, of the dead tissue from our bodies, and that this consists in returning it to the earth, from which it has been derived, in utilizing it as manure. Not only is this a great question in political economy, (for in the city of Philadelphia alone there goes annually to waste more than $2,000,000 worth of the most valuable kind of fertilizer in the shape of human refuse), but it is absolutely the only way in which we can prevent this waste, which was once a part of our bodies, from generating the most loathsome and fatal diseases. Dr. Henry J. Barnes, who contributes a most instructive paper to the *Boston Medical and Surgical Journal*, tells us that in the State of Massachusetts alone there are ten thousand cases of typhoid fever every year, and every one knows that a large proportion of the cases of this disease may be attributed to defective sewerage. He plainly demonstrates from experienced facts that all methods of drainage ordinarily in use are faulty, since the receptacle, be it river, ocean or well, will ultimately become so full of refuse as to constitute a nuisance.

During the past ten years sanitarians and engineers have made great progress towards a solution of this question, and it is fair to presume, from the great increase in the number of cities and towns that have adopted irrigation and agriculture as the means of purifying sewage, that this method has proved the most satisfactory. Berlin has two large farms devoted to this object, one of 2,035 acres and another of 1,818 acres. A great many chemical experiments were tried before the adoption of the present system. They proved very expensive, and none purified the water, although many clarified it. Finally, after experimenting in irrigation and agriculture for eighteen months on a little field of less than seven and one-half acres, such favorable results were realized that this system was adopted for the city. At the present time 1,067 acres suffice to purify 15,060,000 gallons per day, the drainage of four-fifths of the city, containing a population of over 600,000. There is some odor at the opening of the large sewer, but in the fields there is no smell, and the sanitary condition is all that could be desired. There never has been any complaint from the numerous adjoining habitations, and the effluent drain water of the farms is pure and clear, it being impossible to recognize by microscopy or chemistry any influences of the sewage. Vegetables and fruit trees grow luxuriantly on the land, and their roots make a perfect filter. Thirteen and one-quarter tons of hay have been cut on a little less than two and one-half acres.

There are two essentials to healthy life that the taxpayers must demand from the municipal legislators—good water and proper disposal of sewage. Nearly all else that is necessary for the preservation of health is within the personal attainment of the individual, but for these two prime factors we must look to our city officials, and it behooves us to look long and strong enough to attract their attention.

CHOLERA—PRECAUTIONS AGAINST IT.

The prevalence of cholera in France will make a few words on the subject at this time appropriate. Owing to our communication with European countries, we have just reason to fear that the disease may be brought amongst us this summer, and it is well, therefore, that we should know some little about it. Last summer, cholera was, as we all know, very prevalent in the far East, and with a view to investigating its nature, two commissions were sent out from Europe—the one from France, under the guidance of M. Louis Pasteur, the distinguished scientist, and the other from Germany, under the direction of Dr. Robert Koch, who has made his name famous on account of his researches into the cause of consumption. Dr. Koch has also passed the greater portion of the last winter in India, where he has still further prosecuted his investigations. The results of his labors may be summed up in the following few words. He has found bacilli (which are little microscopical vegetable bodies, endowed with all the properties of living organisms) in the bowels of cholera patients, in the dejecta from the bowels, and in certain water that had been drunk by patients suffering from cholera. While he has not yet positively said so, yet the presumption is that he considers that these little bodies are the cause of cholera. Remember that this point is not yet positively settled.

In order that we may avoid the cholera, if it comes among us, two points are essential—the one public, the other personal. The first includes action by the authorities, to secure cleanliness of our streets; and the second, care by the individual, to secure cleanliness of the person and of the house. These bacilli thrive and multiply on a nourishment of filth, hence to retard their progress we must remove the filth. Filth really means all organic matter that has served its purpose and is undergoing decomposition. Hence a bucket of slops at the kitchen door, subject to a hot August sun, will offer just as likely a place for the propogation of bacilli as would this same bucket filled with dejecta from the bowels. The more perfect is one's health, the more resistance does one offer to the inroads of disease of whatsoever nature. Hence does it behoove us to see to it that our bodies are in good condition, during these cholera days. We must have *pure water*, *good food*, *pure air* (*country air, by all means, if possible*), plenty of rest, an absence of violent exertion, avoidance of exposure to drafts and sudden changes of temperature, and ABSOLUTE CLEANLINESS OF PERSON AND SURROUNDINGS.

When the disease is prevalent in a locality, it is very dangerous to neglect a diarrhœa, for what may seem at first as but a simple, plain diarrhœa, may in an hour or two, develop into a full-fledged and fatal case of the disease; hence the physician should be sought, when a suspicious looseness of the bowels occurs in cholera times.

Thus then we know how to avoid the disease. These few directions are exceedingly simple, and yet, if faithfully carried out, they will, in the vast majority of cases, enable us to pass through an epidemic of cholera unscathed. Those who neglect them are usually the victims.

THE DANGERS OF VISITING THE SICK.

The *London Lancet*, June 14, 1884, very wisely tells us that there are certain diseases in which cheerful society is one of the best agents for waking the sufferer from his apathy, and preventing him brooding in despair over real or imaginary sorrows, or, in other words, in which a gentle stimulus calls forth latent energy, or turns that in action into a healthier channel. But even in such cases it should be remembered that there is a point at which physiological exaltation passes into morbid excitement; and if this be overstepped, the patient has to pay the penalty in subsequent exhaustion, loss of sleep, and waste and overwrought tissue. But it is concerning other classes of patients that we would especially give a few words of caution and advice. Acute illnesses in any form, and fevers in particular, require a judicious supervision on the part of the medical attendant, who should regard it as much a part of his duty to limit the visits of anxious friends, as to order the daily sustenance of his charge. When the process of assimilation, and so the renewal of energy, is brought to its lowest ebb—e. g., in typhoid fever and similar diseases—every effort should be made to enable the patient to maintain his reserve of power, and not waste it in response to the well-meant but ill-advised attentions of solicitous relatives. Another argument in favor of this contention is that when the mind is clouded by the influence of some toxic agent, or when the centres of organic life are assailed by the explosive shocks of racking pain, there is less desire for the tender caress and sympathetic tear. It makes us shudder to think of the consequences entailed by the afternoon visits of friends to the inmates of our general hospitals. Physicians have occasionally taken the pains to ascertain the effect of the excitement on the body-heat of the patient, and with the result of finding that it now and then amounted to a sharp, though usually short-lived, elevation. Again, imagine the danger of emotional excitement to a delicate female, almost pulseless from protracted hysterical vomiting. What is more calculated to arouse and throw into disorderly, and perhaps fatal, activity the forces upon the conservation of which the continuance of life depends? As we write we have before us a letter setting forth the reckless exposure to danger that is daily going on in connection with some of the London small-pox hospitals. Relatives of patients are allowed to enter these institutions, converse with their friends, and then, without the slightest attempt at disinfection, to carry away the contagion of variola into the crowded paths of human intercourse.

THE EFFECT OF EXTERNAL INFLUENCES UPON THE PRODUCT OF CONCEPTION.

In a future issue there will be published some plain directions for the guidance of a pregnant woman. While child-bearing is a perfectly natural phenomenon, and need not and ought not to be looked upon with the dread with which so many women are accustomed to regard it, yet, at the same time, it must be recognized that during the period of pregnancy the system is in a peculiarly sensitive condition, and that the pregnant woman must be more than usually careful of herself. With this we will deal later, while at present we will confine our remarks more particularly to the influence which surroundings have on the product of conception, on the child in the womb.

A curious illustration of the influence upon the child of the circumstances under which conception takes place is afforded by some observations made by M. Legrand du Saulle, which we find reported in the *Progrès Médical.* He has seen 92 children who were conceived in Paris at the time of the siege, 64 of whom (nearly seventy per cent.) were deformed in mind or body. He divides these 64 into three groups. In the first, numbering 35, he found children with scrofula, retreating foreheads, crossed-eyes, epilepsy, deafness, stammering, bone disease, club-foot, incontinence of urine, and paralysis. The 21 children comprised in the second group presented intellectual peculiarities, such as a want of mental activity, moroseness, apathy, inability to fix the attention on any one thing, semi-imbecility, and idiocy. The remaining 8 exhibited various moral defects. He found them egotistical, self-willed, vicious, quarrelsome, and prone to strike their companions on slight provocation, and several were obscene in their actions and habits. But a very large proportion of the children conceived at this time were either still-born or died in early infancy. The number of deaths and the frequency of mental and physical deformities in the survivors were so noticeable that the term *enfant du siège* has come to be popularly applied to any sickly and deformed or otherwise unfortunate child. The weight of evidence is now strongly in favor of the popular idea that impressions made upon the mother do have an effect upon the child, hence we are prepared for what we will have to say in a later issue, that it is of paramount importance for the pregnant woman to lead as placid and easy a life as is possible, to avoid all exciting acts or sights, and that the nearer she conforms to this rule the nearer to perfection will be the child to be born. Particularly are these precautions necessary, if there is reason to fear any inherited taint from either parent.

THE WET-NURSE *VS.* THE BOTTLE.

When a mother cannot nurse her child, the question is often asked whether it is better to resort to a wet nurse or to the bottle. The weight of medical opinion on the subject may be thus summed up: If you can procure a proper wet-nurse, she is very decidedly to be preferred to the bottle. In selecting a wet-nurse, the points to guide you are: she should be young, healthy, under thirty years of age, and one who has just lost her *first* child. Unless you can be *absolutely sure beyond the question of doubt*, that she whom you propose to employ to give nourishment to your offspring is perfectly healthy, you will do better to give the preference to the bottle. It is sometimes exceedingly difficult to settle this point, for some of the most loathsome diseases may exist in the system, and yet offer no signs of their presence to the uninitiated observer. Hence is it imperative that you should have some capable and experienced physician to make an examination of your proposed wet-nurse, after you yourself are satisfied with her in other respects, in order that you may be secure on the all-important question of health. If a bottle is to be used, you should buy a closed nipple, and make the puncture with a needle heated red-hot. In this way the milk will enter the stomach slowly and proportionately to the gastric juice secreted. The milk should be obtained from a number of cows for the sake of uniformity, care being taken that all the cows are well fed and cared for, which can be practically accomplished by procuring your milk supply only from a reliable party, of whose honesty and intelligence you are satisfied. The child should be fed regularly, and not every time it cries. An infant's stomach at birth holds about four ounces; at the second month, six; at the sixth, eight to ten. The amount of food given should be regularly increased, and the amount of diluent diminished. After the third month, the last food should be given at 10 p. m., and the child should sleep until 6 a. m., not awakening to take food.

Canned condensed milk contains too much sugar to be good, but this does not apply to that made fresh every day. Too much stress cannot be laid upon scrupulous cleanliness of the bottle. When emptied by the baby, it should be well washed in hot water, then filled with hot water and a small piece of washing soda put into it, and let it stand until required for use again. Then pour out the soda water and rinse thoroughly before using. *Two* bottles should be in use, so that one can be always immaculately clean.

THE INFLUENCE OF THE PUBLIC SCHOOLS ON BRAIN BUILDING.

Dr. W. J. Conklin thus concludes a paper on this subject in the *Columbus Medical Journal* for May, 1884:

We have thus briefly reviewed some of the imperfections in our public school system which are sure to result in bad brain building. The school cannot afford to cripple its usefulness by antagonizing the well-known laws of physical development, nor can the State afford to have it so crippled.

We repeat our conviction that the schools are but one factor, and perhaps the least, in undermining the physical vigor of American children. The only way, however, to correct the evil practices and bad hygienic surroundings of street and home is through the school house.

The shortest route to the fireside is through the school room.

When teachers become thoroughly aroused to the importance of the physical development of the young, and familiar with the fundamental truths of physiology and sanitary science, then, and then only, will education become in fact what the root signification implies—*a leading out*—a symmetrical development of all the faculties, mental, moral and physical.

Our plea is for better school accommodations, including heating, lighting, ventilating, and furnishing school buildings; for a later school age, lighter tasks, shorter hours, and more play during the growing period of life—a period in which children are not only most readily, but most permanently affected by every influence to which they are subjected.

We place no premium upon idleness or stupidity. Good digestion and healthy brains are not antagonistic; a torpid liver and brilliant cerebration are not necessary associates; but, on the contrary, the "mens sana in corpore sano" is as true to-day as when uttered by the heathen poet.

Ohio has upon her statute books a law which points the way to a removal of many of the objectionable features of our common schools: a law, be it said to her credit, not found in any other State of the Union. The amended section 2135 of the Revised Statutes requires Boards of Health to inspect semi-annually, and oftener, if necessary, the sanitary condition of all schools and school-houses within the limits of the corporation. So far as we know, the law sleeps upon the statute books.

(If it does, it is a crying outrage. It should be rigidly enforced, and every State in the Union should have such a law.—*Ed. Annals of Hygiene.*)

THE PREVENTION OF BLINDNESS IN INFANCY.

The following instructions, based upon the directions of the Society for the Prevention of Blindness, have been issued by a committee of the Manchester and Salford Sanitary Association (of England) for the information of mothers and nurses.

"One of the most frequent causes of blindness is the inflammation of the eyes of new-born babies. Yet this is a disease which can be entirely prevented by cleanliness, and always cured if taken in time.

"The essential precautions against the disease are:

"1. *Immediately after the birth of the baby, and before anything else is done*, wipe the eyelids and all parts surrounding the eyes with a soft dry linen rag; soon afterwards wash these parts with tepid water before any other part is touched.

"2. Avoid exposing the baby to cold air; do not take it into the open air in cold weather; dress the infant warmly, and cover its head, because cold is also one of the causes of this eye-disease.

"When the disease appears it is easily and at once recognized by the redness, swelling, and heat of the eyelids, and by the discharge of yellowish white matter from the eye. *Immediately* on the appearance of these signs *seek the advice of a medical man;* but in the meantime proceed at once to keep the eyes as clean as possible by very frequently cleansing away the discharge. *It is the discharge which does the mischief.*

"The cleansing of the eye is best done in this way:

"1. Separate the eyelids with the finger and thumb, and wash out the matter by allowing a gentle stream of lukewarm water to run between them from a piece of rag or cotton-wool held two or three inches above the eyes.

"2. Then move the eyelids up and down and from side to side in a gentle, rubbing way, to bring out the matter from below them; then wipe it or wash it off in the same manner. This cleansing will take three or four minutes, and it is to be repeated regularly *every half hour* at first, and later, if there is less discharge, every hour.

"3. The saving of the sight depends entirely on the greatest care and attention to cleanliness. Small pieces of clean rag are better than a sponge, as each rag is to be used once only and then burnt immediately; sponges should never be used, except they are burnt after each washing.

"4. A little *washed* lard should be smeared along the edges of the eyelids occasionally to prevent them from sticking.

SPECIAL WARNING.

"Of all the mistaken practices which ignorance is apt to resort to, none is more ruinous than the use of poultices. Let them be dreaded and shunned as the destroyers of a new-born baby's sight. Tea-leaves and sugar of lead lotion are equally conducive to terrible mischief, stopping the way as they do to the only right and proper course to be taken."

RENTING INFECTED HOUSES.

THE CASE OF BIRD VS. GREVILLE.

Starting out with the assumption (which is a fact) that the germs of disease may and often do retain their power to produce disease for a considerable period of time, even for years, you will be prepared when we say that we badly require a law in this country that will make it a punishable offence for a person to knowingly offer for rent a house in which a contagious disease has existed, until that house shall have been thoroughly and scientifically disinfected. In this connection it gives us pleasure to note a case in point which has recently occurred in England. In March last year Lady Greville took a furnished house from a Mr. Bird, the property of the plaintiff, for three months. A few days after the agreement was signed, but before taking possession, Lady Greville came to see the house, and found that one of Mr. Bird's children was ill. She asked what was the matter, and the nurse said it was "only a cold." It was really measles, as Mr. Bird knew before the contract was made. Hearing by accident what the child's complaint was, Lady Greville declined to take the house. Mr. Bird had by that time left for America, but on his return in August he sued Lord Greville for fourteen weeks' rent. The child had been removed a week before the commencement of the term, and it was contended on the plaintiff's behalf that, disinfectants having been used, the premises were in a habitable condition. It was a disagreeable feature in the case that the house had actually been let during a portion of the time for which the plaintiff claimed, but that did not in any way affect the principle of the decision. Mr. Justice Field, while commenting strongly on Mr. Bird's conduct in concealing the nature of his child's illness, said it was unnecessary for him to determine whether there had been fraudulent misrepresentation. In every contract for letting a furnished house, the law implied a covenant that the house should be in a fit state for occupation at the commencement of the tenancy. Here the child had been ill with measles in the house a week before the day on which Lady Greville was to enter, and, though the medical evidence was conflicting, the judge declined to hold that all danger of infection was over. He, therefore, came to the conclusion that the landlord was not entitled to recover the rent, and gave judgment for Lord Greville with costs.

THE EVILS RESULTING FROM HIGH HEELS.

A distinguished foreign authority, commenting on the evils of high heels, issues the following wise advice, which we publish, as giving additional force to Dr. Busey's views (see page 22): It is extremely difficult to imagine why the very ungainly gait which is thus acquired should remain in fashion for a single week in a civilized country. Nature has intended that the foot in standing should bear the weight of the body chiefly through the heel, and that this position should imply but little or no voluntary strain of the trunk or limbs. It is so when one stands on the naked foot. The arch of the instep has merely a steadying influence. The latter comes into play in walking, when, the heel being raised by the muscles of the calf, it acts as a lever to raise the body and bear it forward, while the contraction of the muscles of the sole completes the same movement in the backward pressure of the toes. In natural progression, therefore, the joints and muscles are exercised in turn, and pressure falls where it can be borne. With the high heel, on the other hand, the posterior part of the instep is continually the seat of pressure; the wearer stands, and also walks, or rather stumps, upon its arch. The muscles on the sole of the foot become weak from pressure, the centre of gravity is moved forward from the heel, the foot itself is weakened, and the muscles of the leg strained. As well stated by Dr. Busey, of Washington, these evils are not all. Changes in the spinal curves follow, and give rise to the deep depression at the loin and prominence of hips, with associated mincing gait, which are so commonly seen on every promenade. It is no less certain that the womb is apt to suffer from the increased obliquity of the pelvis implied in these changes. Its tendency is to bend forward. This bending necessarily interferes with the periodic functions of the organ; and, by weakening its supports, favors the occurrence of further displacement. Fortunately, many of those who adhere to the use of this fashionable foot-gear do not wear it constantly, and therefore do not experience its worst effects. Of late it is pleasant to note a tendency to adopt newer styles, which are not only much more elegant than that which we have been criticising, but which allow of free movement without the risk of after ill-effects. No human foot should be allowed to rest within a boot whose heel does not fall evenly below its own, and does not afford in its moderate height and width a guarantee for ease and security in walking.

THE INFLUENCE WHICH THE PRESENT SYSTEM OF EDUCATION HAS UPON THE HEALTH OF THE COMMUNITY.

Dr. Howie, in February, read a paper before the Liverpool Medical Institute, of which the following is the *Medical Press'* abstract:

He held that it is the duty of medical men to insist upon the evil effects which are certain to follow if the present course is persistently pursued. Confining his remarks entirely to children under twelve, he said that no such child ought to be called upon to perform any kind of work, whether muscular or mental. That four hours' *mental exercise* is enough, twelve hours in bed, four hours for meals, etc., and four for muscular exercise. That, much as he believed in education as a means of national improvement, yet it would be better to leave the masses uneducated than to train their minds at the expense of muscular strength and dexterity. Reading and writing, although extremely important, were not absolutely essential to the highest education; that facts themselves, without the ability to think and speak correctly about them, are of but small advantage in mental training. Under the existing educational code, teachers are compelled to force into the minds of their pupils information for which they are utterly unprepared either by age or previous training. That the blame rests on the framers of this code who have utterly ignored the brain capacity of children, and not on the schoolmaster or inspector, who is simply acting in accordance with their directions. Throughout the whole course of a child's school career, most of the subjects of study are quite beyond his intelligent grasp, unless he is especially precocious. He then described at some length the influence which close confinement in school-rooms had upon the health, by inducing a tendency to frequent colds, which, in children of consumptive tendencies, will ultimately lead to that disease, and quoted several cases from his own experience in support of this. He also spoke strongly in favor of the half-day system of schooling. In our elementary schools, it is not so much actual overwork as excessive stimulation of the growing brain which leads to its far too rapid growth to be healthy. The nerve structure is, through this, rendered extremely sensitive and lacks stability. In order to remedy the present system, he suggested that, first of all, we ought to choose good teachers, and give them a considerable amount of freedom in dealing with the pupils, and to abolish the system of payment by results.

CREMATION.

The *Weekly Medical Review*, June 7, 1884, says that cremation is evidently gaining favor rapidly, and the example which the late Dr. S. D. Gross established in requesting his remains to be cremated, will not fail to have its influence. If the custom of cremation was adopted, there would unquestionably be instituted a more searching investigation relative to the cause of death in cases which, at present, undergo little or no investigation, and such systematic investigation might contribute largely to the further development of pathology. It would further give us hitherto unobtained information on the absolute amount of mineral salts contained in the human body at various ages, and their variation in different callings in life, as well as in the same callings in different regions. In stonecutters, for instance, we should expect quite an increased quantity of the mineral constituents peculiar to the stone on which the individual was accustomed to work, would be found partly in the lungs and in part even disseminated over the body. For, if small particles of coal can thus find their way through the lungs to distant organs, there is no reason why other small particles may not pass through similar channels. A similar process of reasoning would lead us to expect a considerable increase of iron in the final ash of those engaged in needle polishing and similar occupations. Accurate knowledge on these points would be peculiarly interesting as facts, and would be very likely to lead to eminently practical results.

We see from the daily papers that a proposition is on foot in the South for the cremation of the victims to certain contagious diseases. Such a procedure would probably be more efficacious in the suppression of contagious diseases than we can at present realize. For, although we are not sure of the actual cause of infection in such cases, we know sufficient in a clinical point of view to prove the danger of contact with such cases, and to establish beyond doubt the purifying influence of fire. It only remains for a few men of note to lead the way to introduce a law to cremate all bodies deceased from infectious or contagious diseases.

Important as this is, relative to the human race, it is none the less important relative to the disposal of the bodies of animals dying of infectious diseases. It is the custom to bury such carcasses without much regard to location, and the carcass is allowed to infect the soil, and thus affect the water which their survivors have to drink.

NEW SANITARY RULES FOR CIRCUMCISION.

It will perhaps be remembered, says the *Weekly Medical Review*, that an epidemic of syphilis once broke out among the Hebrew children of Paris, and Ricord traced the infection to a holy but sinful rabbi. The poor little ones had to endure the penalty of that villainous practice of the Jewish church, of the rabbi taking the penis into the mouth after the circumcision, apparently in order to arrest hemorrhage. Such a practice needs a decree from the nabobs in the church before it can be stopped. Finally the decree comes, however, that only such persons shall be permitted to perform the operation as shall be authorized by the Jewish Supreme Council. The rules laid down by this council are as follows.

1. The knife must be freshly polished and the forceps properly purified:

2. The quadrangular pillow employed, as well as the sausage-shaped ring, must be frequently renewed, and, before every circumcision, covered with new gutta-percha tissue or new sarsanet.

3. The operator, immediately before the operation, must carefully wash the hands with soap, and cleanse the nails with a good nail brush, taking peculiar care that no dirt be allowed to remain under the nails, more especially under those of the thumbs. The hands must, in addition, be washed in a five per cent. solution of carbolic acid. The operator is no longer to suck the wound, nor irrigate it with wine ejected from the mouth. Instead of this, the blood is to be removed by gently wiping the wound with pledgets of purified boracic lint dipped in wine. The wound is to be closed by being enveloped in a strip of ten per cent. boracic lint. The further removal of fluids and blood-clots is only to be effected by means of a new sponge previously soaked in a five per cent. carbolized solution or by salicylized lint. A medical man must be immediately called in if hemorrhage be considerable and cannot be at once stopped, or if it be from an artery. Such authorized persons are forbidden to perform the right if suffering from any infectious disease, and until complete recovery has taken place.

MONTHLY NURSES AND INFECTIOUS CASES.

A correspondence between two medical men on the above subject has been forwarded to the *London Lancet*, May 31, 1884. The wife and two children of one of these gentlemen had scarlet fever. He sent for a monthly nurse to tend them. Learning of her engagement to nurse the case of a medical neighbor, he wrote to this gentleman, asking him to request the husband to send for the nurse to his house (where the three cases of scarlet fever were) when she was wanted, but without stating the nature of his wife's illness. This letter and its request so surprised the medical man to whom it was addressed that he could only find relief in forwarding the correspondence to the *Lancet*, which withholds the publication of it for the sake of avoiding personality; but says that but for the copy of the actual correspondence, he could scarcely have believed that a medical man could have acted so. When the nurse was actually fetched to the patient, the duration of the earliest of the cases had not been a month, and that of the latest less than three weeks. She was of course immediately dismissed by direction of the medical man. We are constantly appalled by the selfishness of patients, who carelessly expose themselves in an infected state, or refuse to take the most obvious precautions not to spread disease. Then how can we blame the public when a medical man can deliberately send for a monthly nurse to tend three scarlet fever patients in his house, and ask a brother practitioner to arrange that she shall be sent for when wanted, and go reeking with infection to nurse a lying-in woman, and be in constant contact with her three or four young children?

THE INFLUENCE OF THE CONSTANT USE OF HIGH-HEELED FRENCH SHOES UPON THE HEALTH AND FORM OF THE FEMALE, AND UPON THE RELATION OF THE PELVIC ORGANS.

Dr. Samuel C. Busey, of Washington, read a most valuable paper recently, before a medical society, on this subject, from which we take the following valuable points. Paget, the great English surgeon, has supplied the following description of a perfect female foot: "Great breadth and fullness of instep, a well-marked great toe, a long second toe, projecting a little beyond the great toe, and a very small, or, in some cases, almost suppressed little toe."

A comparison of the normal or perfect female foot (Fig. 1) and the malformed foot represented in Figs. 2 and 3 ought to convince the most enthusiastic devotee of the evil effects of the French high-heeled shoe. A further examination of the diagrams will show that the toes may also be greatly distorted. The continuous pressure upon the joints of the instep and toes, and the tension of the muscles and tendons of the sole of the foot produced by the displaced heel, distorts the toes, as shown by the lines $D f e$ in Fig. 2, and $D c$ in Fig. 3, so that the tread of the foot, represented in length by the line $A B$, is shortened by the distance $A e$ in Fig. 2, and $W c$ in Fig. 3.

The astragalus receives at R (Fig. 3) the weight of the body, which is transmitted along the lines $R B$ and $R A$. If the hollow of the foot should be made to touch the ground, the line $A B$ would be lengthened by the distance from A to X. The conditions of superincumbent weight, which would thus flatten the arch and increase the length of the foot, might exaggerate the deformity shown in Fig. 3 in a foot geared in this style of shoe. The diagrams show, furthermore, that the measurements taken in the air, as is usual, of feet thus distorted, are necessarily too short, and the feet will be cruelly pinched in the erect position between the lines $N B$ and $A O$ (Fig. 2) by shoes made by such measures.

The casual observation of awkwardness and unsteadiness of carriage of the wearers of high-heeled shoes, and the occasional occurrence of injuries to the feet and ankles attributed to their use, had long ago impressed him with the belief that the inexorable precept of fashion had lengthened the shoe heel far beyond the conveniences of easy and graceful locomotion, and that results would follow their continued use other, and perhaps graver, than the callosites, bunions, ingrowing nails, sprained ankles, and painful calves, which so frequently torment the votaries of this reprehensible practice. But not until he had seen, under advantageous circumstances, not long ago, at a fashionable summer resort, the most advanced style of full toilet foot gear, did he appreciate the probable extent of its influence upon the growing form of the female. It had become the custom for the lads and misses of all ages, from five years to early puberty, to assemble, during the evenings, in the parlor, and engage in the dance. This company comprised many different sizes and forms, which exhibit the grades and phases of childhood development in great variety. The feet and ankles of the larger number of girls were geared in shoes with heels so high and slender as to fasten them in the position as if always walking down hill, the toes being pushed more and more forward. The rigid fixation of the feet in this unnatural position diminishes their size, lessens the spring and elongation of the double and elastic arch of the instep, and confines the muscles, tendons, ligaments, and bones in strained relations, impeding, if not arresting, the process of formation, waste and repair. It disturbs the joints of the diversely shaped surfaces of the many small bones comprising the instep, destroys the easy, free, and elastic mobility of the joints, and transforms the different bones into a rigid body not unlike a shoemaker's last. The excessive elevation of the heel displaces the centre of gravity, which should coincide with the centre of movement, and transfers the weight of the body, for the most part, from the heel to the metatarso-phalangeal articulations—joints arranged with shallow sockets to facilitate movement in every direction, and to expedite progressive motion, but not to bear the burden of the body-weight.

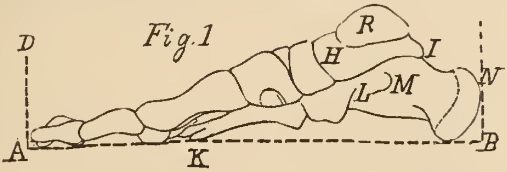


Fig. 1

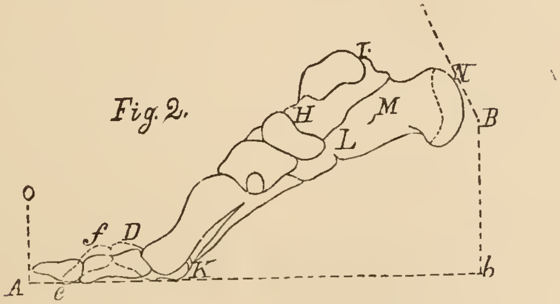


Fig. 2.

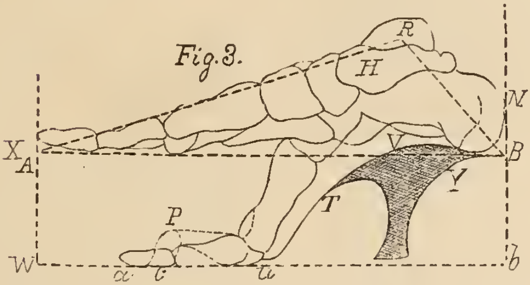


Fig. 3.

The movement, attitude, and poise of those whose feet were thus tackled with fashion's latest and choicest pattern of high-heeled shoes, were in marked contrast with those of the less ostentatiously dressed, who retained the free and natural play of their muscles and joints, and the capacity and elasticity of motion and posture which restore the body to its balance from any slip or vacillation without apparent effort. The movements of the former were stilted, uneasy, restrained, and executed with caution, under mental strain and with unnecessary expenditure of force. As he sat, evening after evening, in the gay saloon, a silent and unknown spectator, he could see the gradual effacement of the merry dimples and glow of health from their cheeks, the deepening lines denoting wear of body and tire of nerve, and the pallor of distress creeping over their youthful faces, as they limped or staggered to places of rest.

The physical well-being of the feet is a necessary and important part of the general sanitation of health. Pedestrian exercise is the great promoter and conservator of functional activity and constitutional vigor. To enjoy it, and to realize the benefit to the fullest extent, the feet must be healthy and the foot-tackle free and easy. Sore, contracted, and crippled feet, strained and stiffened joints, altered and displaced articulating surfaces, restrained mobility, and alteration of the line of gravitation (any one or all of which results may find their cause in too early and too constant use of high-heeled shoes), impede and augment the fatigue of locomotion, and make walking exercise painful. *Per contra*, they conduce to the acquirement of ungainly habits of carriage; to disproportion of the component parts of the body; and to a sedentary life, with its manifold disturbances of the animal economy. Yet how many matrons throughout the land will entail upon the mothers of coming generations some one or more of these injuries, with the long train of consequent sufferings, rather than abandon the fashion of a shoe!

The injuries are not, however, confined to the feet, their joints, and component structures. During the same series of observations he had the unusual opportunity of studying the influence of heel-elevation upon the general outlines of the body; for the exuberance of fancy in toilet was not limited to esthetic decorations of the calves and feet, nor were the devotees of extreme styles narrowed to the ages of growing and immature girls.

And as a result he found that these abominable shoes have a strong tendency to obliterate the natural curves and flexures of the body, and, by substituting for them unnatural curves and flexures of the spinal column, to seriously interfere with the proper performance of duty of the internal organs. The womb is displaced, and it may surprise you to learn that, owing to this displacement, much of the womb trouble from which your fashionable daughters suffer at the recurrence of each monthly period is due directly to the use of these badly-designed shoes. Fig. 1 will teach you the remedy—*Have a shoe made to fit the foot, and do not endeavor to make the foot fit the shoe.*

THE LAWS OF HEALTH.

This is the title of a very worthy little book by Dr. Joseph C. Hutchison, a well known physician of New York City. The book is well illustrated, and will prove a valuable guide to all those sensible persons who believe that it is better to avoid disease than to endeavor to cure it when it has taken perhaps an irremediable hold upon the system. The book is published by Messrs. Clark & Maynard, 734 Broadway, New York City.

The Annals of Hygiene.

VOL. I. PHILADELPHIA, AUGUST 15, 1884. NO. 2.

THE PHYSICIAN A POPULAR EDUCATOR.

It is daily growing so evident that the public realize the value of preventive science, and that they are willing to live properly if taught how so to live, that it seems to be clearly the duty of the physician to instruct them in these all-important matters. In a discourse delivered before the last meeting of the Massachusetts Medical Society, Dr. John Crowell very ably discussed this duty which the physician owes to the public, and from his address we extract the following:

Said Hippocrates, two thousand years ago, "A dry soil is essential to health." Yet Professor Chandler declares that not one house in a hundred in New York has a properly constructed cellar, which, he contends, explains the large proportion of deaths from consumption, and the prevalence of rheumatism in that metropolis. Sewer connections are usually made with tile drains, which are rarely tight, and hence they seriously pollute the soil. These cellars are crowded with all kinds of domestic rubbish, and often we find open water-closets for the servants in close proximity to the air-box which feeds the heating apparatus. How many refrigerators have their drip-pipes connected directly with the house-drain! How often are cisterns and water tanks exposed to like pollution! How often are the spaces behind the wood-work of basins, sinks, and other fixtures, foul with dampness, mould, and the accumulation of filth! All the leading cities of the country are guilty of the grossest neglect in the simplest details of domestic drainage and sanitary appliance. We hear the same reports from Brooklyn, Philadelphia, Chicago, and San Francisco.

In our own metropolis of Boston these defects are painfully apparent. Recent reports assure us that many fine residences in the Back Bay region are deficient in sanitary safeguards. Hundreds of houses are built upon piles in made ground. In the process of settling, which may continue for years, the drains become dislocated, and this permits sewage to saturate the foundation and sub-soil. "I have known," writes a standard authority, "seventy-eight car-loads of earth polluted in this way to be taken from under a building in the city of Boston." Official reports tell us that of three hundred and fifty-one houses examined in Boston in 1878, fifty-five per cent. of the drains were imperfect.

In Chicago, out of seventy-five houses where diphtheria occurred, only four were found in a sanitary condition; and in St. Louis, Health Officer Moore reported, in 1879, that there was probably not a single house with perfect drainage, while in a vast majority every sanitary rule was violated.

Not long since, a successful business man invited his family physician to visit and inspect his new dwelling-house, built on the outskirts of a suburban city. The house was a "Queen Anne cottage," of the most approved pattern, picturesque in quaint gables and odd porches, and rich in the glow of color from tinted wall and painted glass. The hand of the artist was everywhere apparent, and each adornment suggested a home of refinement and taste. After admiring all these elements of beauty, the medical friend was practical enough to inquire as to the disposal of sewage, and the appliances for ventilation and heating. The owner of this "gem of a cottage" was quite oblivious on these points. They had been left to the plumber and mason, with no personal or official oversight. It was found, upon examination, that the house sewage flowed directly into a cess-pool situated in close vicinity to the house, and unprotected by any trap. The water-closets were supplied by pipes coming from the cistern containing the water used for culinary purposes, and the cellar was damp from the defective drainage of the clay bottom; and neither bath-room nor water-closet had any adequate means of ventilation. The satisfied owner was appalled when told that his beautiful home contained the germs of disease and death, and the good physician only regretted that his unwelcome detection had not been more timely.

In a large factory in a neighboring city in this State the water-closets furnished for the operatives on each floor were unprotected by traps, and, as there was no official inspection of the building, the fact was unknown to the owner of the establishment until an epidemic among the operatives directed the attention of the resident physicians to the sanitary condition of the premises.

Since the passage of the Act of 1877, authorizing the establishment of local Boards of Health in the larger towns of Massachusetts, there has been a marked improvement in those localities that have availed themselves of the statute. And physicians have rendered a noble work of self-sacrifice in organizing such boards and consenting to remain in official position until a good working system could be secured.

But many of our communities have not yet established such boards, and the smaller towns cannot have the advantages of a complete organization. It is here that the physician can render most efficient work by personal instruction to his neighbors in feasible methods of water supply, in local drainage, in household cleanliness, and in those minor sanitary details which pertain to the order and the decencies of life.

To what kind of places do we send our patients in the summer months for the tonic influences of the blessed air from mountain or sea? Are we careful to inspect the premises and acquaint ourselves with the sanitary conditions of these resorts? How often are they deficient in the simplest rules of cleanliness, with privy, pig-sty, and well in convenient proximity to each other, while frequently, especially in the farm-houses, the dark and unventilated cellars are reeking with the odors of decaying cabbage leaves and musty cider barrels. At a favorite sea-side resort, last summer, typhoid fever made its appearance in one of the "cottages," when it was found that the victims had been drinking water from a well percolated and poisoned by sewage from a defective drain-pipe.

Typhoid dysentery often appears at the old-farm-houses to which we send invalids, and we find too late the stagnant pools of sink water and the damp and filthy cellar. These vicious conditions will be remedied when we lift up the warning voice and declare that no patronage shall be given to any resort, however popular, that does not comply with the wholesome and simple rules of sanitary science.

Is the question, "What do we eat," too trivial to arrest the attention of the physician? The people of New England are far behind the rest of the civilized world in the practical accomplishments of the culinary art. In the bustle and hurry of our busy population, but little attention has been given to the sanitary conditions of cooking, and there is much of truth in the assertion that a French cook will make a nutritious dinner from the remnants of food that we consign to the waste barrel. How rarely do we find good bread, even in families where there is abundance of provisions! How fondly do we cling to the conventional pie and doughnut, as if they were chief among the inalienable rights inherited from the fathers. We smile at the astonished Frenchman who exclaimed, "What a people!—a hundred religions and only one gravy!" And yet is there not a sound philosophical principle involved in this ejaculation, so far as the gravy is concerned? Most of our methods of cooking seem contrived to destroy rather than to conserve the nutritious elements of the animal fibre, the albumen, the gelatine, and the fibrine. We have much to learn, not only from the French, but also from the Scandinavians, as to the methods of preparing food that shall be palatable, nutritious, and easily digestible.

When that intelligent observer, M. Taine, was visiting England, and inquiring into the methods of domestic life, he asked his host, "How do you cook vegetables in England?" "Cook them!" was the astonished reply, "why, we *boil* them: how else *should* we cook them?"

In this connection there is an important class of the community demanding our attention. I refer to the laborers and operatives in our large towns, who labor on the public works and in the factories. Many of these hard-working people are in the habit of "carrying their dinner," which is of course eaten cold, and the contents of these little tin pails and baskets are richer in their variety than in nutrition. No wonder that we have been called a race of dyspeptics. He will be a benefactor to his generation, as well as "put money in his purse," who will devise a simple method of soup distribution among the operatives who depend upon this cheerless method of dining. With large tin cans, transported on hand-carts, hot soup could easily be distributed by dexterous hands among the shops and factories, and for a few cents a comforting and sustaining meal could thus be furnished.

How often do we trace the sallow, attenuated look, the languid eye, and the feeble, inelastic step of many who seek our advice, to the lack of proper food at the proper time! How frequently are we obliged to attribute the complicated train of female diseases to the miserable methods of living in cheap boarding-houses, combined with the constant demands of manual labor!

We need more of chemistry as applied to cooking. The public must be instructed in simple methods of preparing food, so that the nutritious elements will be retained; and what better service can the practical chemist render than to prepare a convenient hand-book for popular use, containing plain directions upon this vital subject? The philanthropist would substantially advance such benevolent work by offering a prize for the best treatise on practical cooking for general distribution among cooks of every grade, from the elaborate culinary establishments of the homes of wealth, from the fashionable saloon, hotel, and eating-house, down to the humble kitchen of the frugal housewife.

What kind of places do many of our business men occupy as offices, where they make the money spent in the elegant houses where dwell the pets and the idols of home? Too often these counting houses and offices are found in dark, narrow streets, and located in a basement, full of the stifling odors from ill-ventilated warerooms and cellars. Here are found clerks working by gas-light in mid-day, and the result is seen in the sunken eye and the sallow look and the shrunken muscle.

In the *conduct of the sick room*, the services of the physician as teacher are of the first importance. It is here where ignorance will reign supremely, and with fatal sway, unless the firm and intelligent hand of authority interferes on behalf of the helpless and patient sufferers. In the furnishing of the room, in the disposition of air and sunlight and artificial heat, in matters of cleanliness in the clothing and in the necessary appurtenances; and, above all, in the *nursing*, the vigilant eye and the guiding genius of the medical attendant are among the essential elements in the successful treatment of disease.

In private practice as well as in hospitals, the physician should seek to have the furnishing of the sick room very simple, with as little of drapery and heavy carpeting as possible, and he should endeavor to secure ventilation and a proper adjustment of light by such contrivance as his ingenuity can suggest. The popular prejudice against air and sunlight has not yet faded from the face of the earth, and often the attendant will exclude both of these vital elements, as if they were the cause rather than the antidote of disease. In the regulation of artificial heat, a good thermometer in the sick room is all important, and its registration should be insisted upon by the physician, and *his* standard of cleanliness in the care of the clothing and the vessels of the room should be often held up as a guide, and, if needful, as a terror, to the presiding genius.

It must be confessed that the average nurse, as found in our country towns and villages, is not the ideal guardian angel of camps and of hospitals, whose fairy shadow, as she flits along the corridors, falls like a benediction upon the helpless sufferers. The country physician has to deal with different material, and oftentimes his greatest embarrassment in the treatment of disease arises from the ignorance or duplicity of the nurse. In the larger towns and cities, and especially in the metropolis, this difficulty has been effectually met and overcome by the training of nurses in the hospitals, and a noble army of helpers is now in the process of this discipline, whose intelligent labors will add to the success of medical treatment wherever they are available.

But in the towns where hospitals do not exist the trained nurse is almost unknown, except in the most highly favored families. This vital want can be effectually met by the physicians of any given locality in the establishment of normal classes for the instruction of all women desiring the office of nurse, the physicians acting as teachers, under a system simple and elastic in its operation. In these classes, instruction should be given in those essential duties of the sick room which ought to come within the province of every attendant deserving the name of nurse.

BETTING AND DISEASE.

Lecturing in England, recently, on "The Gospel of Recreation," Dr. Crichton Browne took occasion to condemn, in strong terms, those amusements which depend on betting for their interest and attraction, and which are, he argued, equally injurious to morals and to health. "The element of chance or uncertainty," he said, "which, as Sir James Paget has pointed out, enters into so many recreative pursuits, is in itself harmless, but becomes pernicious whenever it is wedded to greed or craft, and it invariably is when money or money's worth is made to depend on it. But, unhappily, the chance element in recreation has a sort of natural tendency to unite itself with greed or craft. No one can look around him to-day without perceiving on how large a scale this union has taken place. There may have been times when reckless gaming and high play were more prevalent than they are to-day amongst the affluent classes in this country; but it may be questioned whether there ever was a time when betting was as wide-spread as it now is amongst the masses of the people. The multiplication and enormous scale of sporting papers, which are, for the most part, subservient to betting transactions, the admission of the latest news as to the odds into even high-class journals, the revelations of the Stock Exchange, and the whispers of the clubs, all testify to the extensive diffusion of a vice that is peculiarly insidious and demoralizing; insidious, because it comes to us gilded with pleasure and in our moments of relaxation; demoralizing, because with parasitic growth it saps a man's better nature, and is very difficult to extirpate when once it has taken a firm hold. In its effects on the health of those who practice it, betting resembles the most deleterious kinds of mental occupation. It involves a great deal of that emotional disturbance which is the dangerous element in brain work, and which is really the measure of the degree in which that work shortens life and impairs vigor. The pleasurable excitement which draws men into it is analogous to the charm of tippling, and the frenzy that seizes those who are completely abandoned to it is a species of madness. To call a pursuit that is attended with such risks a recreation is a sad misnomer. Medical men know well that gambling is responsible for numerous cases of dyspepsia, sleeplessness, and nervousness, of heart disease and diabetes, and of paralysis and apoplexy; and our lunatic asylums are never without melancholy examples of its influence in inducing insanity in some of its most painful and least hopeful forms. That it often leads to drunkenness and ends in suicide is even popularly recognized. Our low public houses are the haunts of sots who have wrecked their happiness at skittles, and a rashly importunate pistol shot now and again gives piquancy to the life at Monte Carlo. Knowing what they do of its pathological affinities, medical men can not see without concern the growing tendency of city men to resort to gambling—mild gambling, perhaps, but still gambling—as a solace and relief after business is over. In railway carriages, on their way to Brighton or elsewhere, in their homes or clubs in the evening, games of chance absorb their attention, and instead of being a solace and relief, become really a continuation and aggravation of the worries of the day. They do not, as all genuine recreations should, transfer pressure from one group of nerve centres to another, but, under a thin disguise, maintain the same kind of cerebral activity that has been demanded during long hours in the counting house or office. Instead of building up, they cause wear and tear; instead of refreshing, they fatigue; instead of soothing, they irritate. No wonder that city men, who thus recreate themselves, are irascible, morose, or despondent. Perhaps one of the best ways of realizing the effects of any vice or habit, is to make a study of the faces of those who are addicted to it. The most villainous and degraded faces in our population are to be found, as we should naturally expect, in prisons; and respecting these Mr. Francis Galton has said that he can not turn over a bundle of photographic portraits of criminals without being overcome by a sense of aversion and disgust, such is their ugliness.

"But the next best place to a prison in which to see the English physiognomy at its coarsest and worst, is the platform of a London railway station on the day of a suburban race meeting when the special trains are just starting. There may be seen a pushing, chafing crowd of betting men, or bookmakers and their dupes, with rascality stamped on their features in a way that can not be matched in any other spontaneous assemblage of their countrymen. In almost every face may be discerned cruelty and greed, in many may be recognized a hideous mixture of imbecility with low cunning, and in a few may be caught glimpses of infra-human or mere animal rapacity. There may be seen faces that are congenitally and radically bad, and with them others that bear the faded traces of better things, almost blurred out, perhaps by the blotches of dissipation, and the hard lines carved by this soul-destroying vice. The rapidity with which gambling deteriorates the moral nature and destroys self-respect is a strong reason for not tolerating the slightest dalliance with it. In that fascinating book published lately, *The Life of Bulwer, Lord Lytton*, in which a gifted son tells the story of a gifted father's earlier days, there is an instructive illustration of the quick corrosion that gambling causes in the heart and mind, and also of the reaction set up in a strong nature by the timely discovery of its pernicious effects. Bulwer Lytton, when in Paris as a youth, had gone to one of the gaming-houses that were in fashion at the time, and had played far more heavily than he could afford, and won largely. The day was dawning when he reached his rooms. His writing table stood on a console in front of the mirror, and, pausing over it to lock up his winnings, he was startled and shocked by the reflection of his own face in the glass behind it. The expression of his countenance was not merely haggard, it was sinister. He had risked far more than he could afford to lose, his luck had been extraordinary; his gains were great, but the ignoble emotions of the night had left their lingering traces on his face, and as he caught sight of his own features still working and gleaming with a vicious excitement, he, for the first time, despised himself. It was then he formed a resolution that, be the circumstances of his future life what they might, no inducement, whether of need or greed, should tempt him to become a gambler. He kept his resolution. To few, however, is given strength of mind like that of Bulwer Lytton to form and keep so good a resolution, and to turn peremptorily from a seductive temptation; and the records of our Police Courts afford lamentable proof that betting is the high road to crime and humiliation of city clerks who go wrong. Ninety per cent. are ruined through having engaged in betting; and there are few sadder stories than that often told at the Mansion House, or Guildhall, of the promising youth, sent up from his country home to push his fortunes in the great metropolis, who has been drawn into betting, and has drifted on through excitement, anxiety, and desperation, until he has embezzled his master's money. One of the indirect evils of betting is that it prevents large numbers of persons from participating in sports that are in themselves innocent, but have become objectionable from their association with it. The time seems to have arrived when, from no puritanical prejudices, but with a firm scientific conviction of the mischief that accrues from it, betting should be put down, being attacked first in its fashionable strongholds on the turf and card table, and ultimately, if need be, in its humbler resorts, where it hinges on carrier pigeons or pitch-and-toss."

◆

THE PREVENTION OF SUMMER COMPLAINT.

At this season of the year, when our children are apt to be suddenly attacked and oftentimes carried off with severe purging and vomiting, which, on account of its frequency in the summer months, has received the popular appellation of "Summer Complaint," it is well that we should know something about the causation and prevention of this serious malady. Dr. Henry Dwight Chapin, of New York, gives us some valuable points in the *Medical Record*. One of the most frequent, and to a great extent preventible causes, is improper feeding. Although an unwholesome diet may sometimes be taken with apparent impunity, yet it is all the time impairing the digestive power of the stomach and bowels, which is a continual predisposing cause of diarrhœa. The indigestible contents of the stomach and bowels undergo fermentative changes that result in the formation of acids, which act as irritants to the lining membrane of the stomach and bowels. Too early weaning of infants, especially just before, or during the hot months, is a fruitful source of trouble, and should always be avoided. Despite menstruation and even of pregnancy, it is often better for the infant to continue nursing until the weather becomes cooler. Owing to the heat, there is a continual rapid evaporation from the skin, and as a result of this fluid loss the watery parts of the food are quickly absorbed to make up the deficiency, leaving the thickened solid part to ferment and cause irritation. This cause of diarrhœa can be removed by giving milk or other nourishment only at suitable intervals, but allowing the baby to drink frequently of water, administered in small quantities at a time. The avidity with which it drinks will confirm the indication for its administration. Thin barley-water often agrees better with the stomach in hot weather, except in very young babies. Restricted nursing and a more liberal supply of water would prevent many attacks of diarrhœa in infancy.

The intense and all-pervading heat of the summer months forms a factor in infantile diarrhœa that is not so easy to eliminate. And yet much can be done even here in the way of prevention. Heat acts directly and indirectly in causing the mortality due to summer diarrhœa. It acts directly on young children by depressing and rendering more susceptible their nervous energy, by enfeebling the digestive organs, and by increasing but weakening the action of the heart. The indirect effects of heat are caused by fermentative changes in the food of infants and in surrounding domestic and civic filth. The direct connection between decaying refuse matter and summer complaint is shown by the fact that wherever the filth is greatest the death-rate from this cause is highest. There is a plain indication here for preventive treatment. We must insist upon the most scrupulous personal and domiciliary cleanliness during the hot months, while boards of health look after the condition of sewers, streets, and drains. Fermentation changes in milk can be largely obviated by boiling it when fresh to destroy all germs, and then adding a little soda or lime water. The bad effects of great heat upon young children can, to a certain extent, be obviated by giving them a suitable bath every afternoon. If the children are old enough, place them in a tepid or warm bath, and let them play there for an hour. The skin will thus be kept active, the blood cooled by being brought to the surface, and evaporation continue for some time. Of course the water should not be used so warm as to produce relaxation. In the case of babies too young for the bath, frequent spongings of the whole body with lukewarm water will fulfill the same indication. A little vinegar or alcohol may be added to the water to aid evaporation. If an infant begins to droop, it is well to give whiskey or brandy, in doses of from two to three drops for every month of its age up to a year, and repeated several times a day. Finally, infants should be taken daily, in the early morning or evening, to parks, or on a ferry-boat, where they can get pure air. If well babies could be thus daily refreshed they would be much less likely to fall victims to summer complaint. The slightest manifestation of diarrhœa in children during the hot months should be speedily arrested. Many mothers have an idea that a diarrhœa occurring during teething should not be quickly checked. This is erroneous.

CHOLERA AND COWARDICE.

The following remarks are so wise and so eminently suited to calm the panicky state of mind that the expectation of an epidemic of cholera is calculated to create, that we reproduce them from the *London Lancet:*

" It is a most deplorable proof of the weakness of human nature that it is at all times prone to fall into a state of panic when brought face to face with the inevitable. We must all die, and we are not ignorant of this our destiny ; nevertheless, the instant a danger to life is recognized, we fly from the peril with the impetuous haste of crazy and cowardly creatures, forgetful alike of duty and decency. It is vain to argue in favor of self-possession. Philosophy has no charm for, or power over, the man who impulsively turns his back to the enemy. Nothing we could urge could have the slightest weight with the multitude bent on escaping from the ports and cities which are just now supposed to be rife with the infection of cholera. These flying crowds, on safety all intent, must be left to their own devices. It is manifest that they will spread the malady, and it is scarcely less certain that they will, many at least, lose their lives in trying to save them. With regard to these matters, however, it is useless to speak. Suffice it to point out that, although in the presence of an epidemic of cholera there is always and unquestionably some personal peril of contracting the disease, it is by no means certain that this is increased by remaining in association with the sick, or that the danger is to be avoided by running away! During severe epidemics it has been noticeable that the mortality has not been, by any means, greatest in the very *centre*, so to say, of the disease. In the hospitals and among the cholera patients scattered throughout the population, medical officers and nurses have gone about doing their duty, with no greater mortality than that of those who have kept aloof. Indeed, it is probable that a certain amount of immunity from disease has been enjoyed by those who have not feared the danger of infection. The great secret of success in warding off disease is the preservation of health. We mean that if, heedless of danger, men and women do their duty to those around them—keeping up a cheerful temper and a trusty spirit, neither abusing the good things of life nor avoiding them—in short, living as all should live, whether in the midst of a healthy population or in the presence of an epidemic—they have a far better chance of escaping disease than by falling into a state of panic and 'hastening to leave.' The true policy is to kill the germs of disease on the spot, whether they be in the water or in the air. Every particle of the *dejecta* should be destroyed—not simply deodorized, but destroyed—by a powerful agent, capable of burning up organic material. This should be done at once and instantly on the spot, not merely with the choleraic, but with every patient who may have diarrhœa, whether specific or simple. If this be done, and the general sanitary conditions and the average health of the community be looked to, there is no peril that need scare any one out of his or her sober senses in an epidemic of cholera, either on the Continent or at home."

SUGGESTIONS REGARDING CHOLERA FOR THE USE OF THE PUBLIC.

The following suggestions for the use of the public, as to the treatment of early or suspicious symptoms, at seasons when cholera is threatened, or is epidemic, have been issued by the King and Queen's College of Physicians in Ireland.

The College advises no alteration in the habits of living, where these have previously been moderate and regular. All excess should be carefully avoided, especially in the use of alcoholic drinks, as it is, of noted experience, the intemperate who most certainly fall victims to the most fatal type of cholera, as of other epidemic diseases.

All food likely to cause indigestion or bowel-complaint should be carefully avoided, particularly fruit in a large quantity or in an unripe, decayed, or unsound state; likewise, fish or meat when in the least tainted.

Water should be used for drinking purposes only after being boiled; and, in consequence of the possibility of milk being diluted with infective water, it likewise should be boiled before use.

Strict personal cleanliness should be practiced, and the clothing should be adapted to the season and weather.

All debilitating causes should be carefully avoided, such as excessive and long continued fatigue and fasting; overcrowding; exposure to moist stagnant air, or to air loaded with organic effluvia.

During the prevalence of cholera, any person affected by any of the following complaints should at once obtain medical advice: 1, Diarrhæa, or looseness of the bowels; 2, Vomiting or sickness of stomach; 3, Pains in the stomach or bowels; 4, Pains or cramps in the legs. While such aid is being obtained, the patient should be put to bed immediately, and warmth should be encouraged by the application of heat to the body and limbs. Also, in case of sickness of stomach, a large mustard poultice should be applied over the abdomen. In the event of cramps ensuing, diligent rubbing of the limbs should be resorted to.

Hot brandy-punch should be administered in small and repeated doses, and the diet should be restricted to rice, milk flavored with cinnamon and brandy, or arrow-root prepared with milk or port wine.

Should relief not be shortly obtained, and the looseness of the bowels continue, ten grains ot aromatic chalk-powder with opium, or twenty drops of dilute sulphuric acid, with five drops of laudanum, should be administered in a tablespoonful of water, to which a little brandy may be added. This dose, which is intended for an adult, may be repeated every hour for three doses.

The discharges from the bowels should be disinfected, and disposed of as quickly as possible. A wineglassful of the following disinfectant mixture should be poured into the vessels used by the patient, namely, common sulphate of iron (green copperas), one ounce; carbolic acid, a quarter of an ounce; water, twenty fluid ounces, or one imperial pint.

Infected bedding, and all articles of clothing worn by the sick, should be destroyed by fire.

PRECAUTIONS AGAINST CHOLERA.

From a circular recently sent out by the Illinois State Board of Health in reference to precautionary measures against cholera, we extract the following suggestions, which should be observed at all times, but are of especial importance at present, in view of the possible importation of cholera into this country.

"Especial attention should be paid to:

"*First.* The condition of the water supply.

"*Second.* The disposition of night-soil, garbage, and sewage.

"*Third.* The cleansing of streets, alleys, and other public places.

"*Fourth.* The supervision of food-supplies, and of market places, slaughter houses, and similar establishments.

"*Fifth.* The general sanitation of every house and its surroundings.

"1. Water is one of the commonest mediums through which cholera spreads; but, aside from this, typhoid and malarial fevers, diarrhœa, dysentery, and other diseases, are caused by impure and polluted water. Hence the necessity of protecting the supply from contamination by surface-washings and drainage of filthy soil or premises, or of wastes from manufacturing establishments, or by leakage through the ground from privy-vaults, cesspools, etc.

"2. Night-soil, garbage, sewage, and all other forms of decomposing organic matter, are highly prejudicial to health, and their foul odors are indications of danger. The various methods for their proper disposal, so as to render them harmless, are well understood, and should be enforced according to the varying conditions of each locality.

"3. Clean streets and alleys, and gutters properly drained and kept free from unsightly and filthy accumulations, are of even greater importance during the heat of summer than at other times. The healthy condition of the atmosphere of a locality largely depends upon the condition of its thoroughfares.

"4. The rapid decomposition of most articles of food during hot weather—the tainting, souring, wilting, or rotting processes—and the derangements of the stomach and bowels caused by the use of such food, indicate the necessity for special supervision at this time of all food-supplies, and of the places where they are prepared, stored, or disposed of.

"5. The foundation of healthy living is, obviously, the individual home and its surroundings. Houses, cellars, yards, and outbuildings should be carefully inspected, and all accumulations of garbage, refuse, and filth of every description should be removed; or, where this is not practicable, they should be rendered harmless by appropriate treatment. No house or premises can be healthy without proper drainage. If this is not secured by sewers or underground drains, then recourse should be had to surface drains, so as to prevent the possibility of stagnant water under the dwelling or in its vicinity. Cellars should be dry, clean, and well ventilated, so that they may not generate foul air to be drawn up through the house."

HOPE AS A REMEDY AGAINST DISEASE.

Dr. J. Mortimer Granville has been lately rather severely handled by the medical press of London, because he wrote a letter on this subject to one of the daily papers. He is criticised as having performed an unethical act in thus advertising himself in an unprofessional manner in a lay journal. This question we will leave to our transatlantic brethren, while we say a few words upon the subject-matter of his letter. But little touched upon, Hope, as a remedy against disease, is, if wisely and judiciously employed, one of the most valuable and useful means that the physician can employ. Call it what we may, and reason about it as we please, no man of experience will for an instant question that imagination, the prejudices, the mental condition, the conviction of the patient, in many cases exerts a most powerful and a most real influence upon the progress and termination of diseased conditions. Has it not happened to every one of our readers (it repeatedly has to us) to discover accidentally, so to speak, a condition of chronic disease which has evidently been present for years, and yet the patient has maintained fairly good health, and is at the time of the discovery in no immediate apparent danger; yet, when told that he is afflicted with an incurable disease that may carry him off in a few days, or that he may live for months, immediately wilts, like the sensitive plant when touched, and dies in a day or two? Again, do we not all know of cases of chronic disease in persons with a happy, hopeful, contented disposition—disease that we felt sure would soon prove fatal? And yet we see them go on day after day and year after year enjoying apparently good health. Of course we are familiar with and thoroughly recognize the fact that worry, that mental anxiety, is diametrically opposed to good health and long life, and in this fact we recognize the explanation of the influence of depressing opinions and advice; for if we tell a man with a nervous temperament that he *may* die in a few days, from that moment all peace and contentment vanishes from his life, while anxiety, worry and unrest takes possession of his whole being. The practical point to be deduced from these reflections is that it will redound not only to your patient's advantage, but also to your own professional reputation, to make it a rule always to take the most hopeful view that is possible of the patient's condition, especially when the man or woman is one of the "nervous, worrying kind," and always to remember that "hope kept alive" is the great secret of success among quacks. Let us steal their thunder.

SUICIDE AND SLEEPLESSNESS.

Commenting on the recent suicide of the Dean of Bangor, the *London Lancet* says:

The reverend gentleman was a man of considerable intellectual "power," which is the same thing as saying that he was constitutionally liable to intervals of mental depression. All highly intellectual men are exposed to this evil. A pendulum will always swing just as far in one direction as it does in the other. Great power of mind implies also great weakness under certain conditions. The marvel is not that great minds occasionally become deranged, but that they so often escape derangement. Sleeplessness means not merely unrest, but starvation of the brain. The brain cannot recuperate, or, in other words, it cannot rest. Physiologically. recuperation and rest are the same thing. Sleep is simply physiological rest. The only cause for regret in these cases is that the blunder should ever be committed of supposing that a stupefying drug which throws the brain into a condition that mimics and burlesques sleep, can do good. It is deceptive to give narcotics in a case of this type. The stupor simply masks the danger. Better far let the insomnious patient exhaust himself than stupefy him. Chloral, bromide, and the rest of the poisons that produce a semblance of sleep, are so many snares in such cases. Sleeplessness is a malady of the most formidable character, but it is not to be treated by intoxicating the organ upon which the stress of the trouble falls. Suicide, which occurs at the very outset of derangement, and is apt to appear a sane act, is the logical issue of failure of nutrition that results from want of sleep. It is curious to note how a sleepless patient will set to work with all the calmness and forethought of intelligent sanity to compass his death. He is not insane in any technical sense. He has no delusion He does not act, or suppose himself to act, under an "influence." He simply wants to die, and, perhaps, not until after he has made an attempt to kill himself, will he exhibit any of the formulated symptoms of mental disease.

THE EVILS OF AMATEUR DOCTORING.

This journal is not intended to supplant the services of the physician, any further than, by an observance of its teachings, one will avoid many of the diseases for which the services of a physician are necessary. No one and no book or journal can possibly supply or supplement the services of a "good doctor;" while to those who think differently, and who dabble ignorantly in drugs and delight to try their amateur doctoring on themselves and their neighbors, serious results not infrequently occur.

Few cases have brought out the mischief done by amateur prescribing more prominently than one which has recently occurred in England. In this an old man fell a victim to his daughter's zeal for doctoring every sufferer, from whatever ailment, on a common plan, viz., that of administering calomel. Being on a visit to her father, this woman persuaded him and his wife to swallow, each, a powder consisting, in her belief, of calomel, the object being to relieve bronchitis. The result was the speedy death of the old man, with every symptom of strychnia poisoning; and of course an inquest was held on the body. One of the witnesses before the coroner was a former employer of the daughter of the deceased, who deposed that he had been accustomed to prescribe calomel for her on account of biliousness and liver disease. By an unfortunate accident, however, a packet containing strychnine, purchased for the destruction of a dog, became mixed with the calomel powders, two of which were recently given by witness to the deceased's daughter, and by the latter administered to deceased and his wife. One of these contained the strychnine, and its effects were not unnaturally evidenced in the death of the unhappy old man who took it.

With the whole circumstances thus unfolded to them, the jury could find no other verdict than that of death by misadventure, which was returned. A mere censure on the witness, whose experiences with strychnine thus led to such disastrous results, was little more than he could expect to receive; but it may very well be considered whether the possibility of mistakes like this are not greatly increased by the prevalent custom of prescribing for so-called small ailments by those who possess no knowledge thereon to act aright.

TEA A CAUSE OF DYSPEPSIA.

It is not as generally known as it should be that the habit of tea-drinking is a most prolific cause of dyspepsia among women; therefore does it seem well to note the warning issued by the *British Medical Journal*, which says that in the working classes in our great towns, especially amongst women, severe dyspepsia is very frequent, owing to the free consumption of tea that has stood for half an hour or longer, or has been kept on the hob. Boiling water should be poured on the tea leaves in the tea-pot, which should then be placed on the table, and the tea should not be allowed to stand longer than ten minutes. Even then it is not advisable to drink more than two small cups of such tea. This beverage should never be drunk within an hour before a meal, nor immediately after dinner or heavy lunch, as it may cause flatulence or gastric catarrh. Tea-dinners, or tea with meat, are not wholesome, and often upset persons whose digestion is naturally weak. Lastly, tea increases or causes insomnia and tremors of the hands, and masks the effects of over-work in studious subjects of sedentary habits. As the drinking of strong, over-brewed tea is very general among the poor, and as good tea is drunk to excess, owing to certain fashions amongst the upper classes, the dyspepsia which it causes is on the increase. Coffee is very often consumed with tobacco between meals, a habit which has been known to cause severe gastric catarrh until both luxuries have been given up; it is also less tolerated than tea by persons suffering from nausea due to debility or excesses of diet. Cocoa and chocolate are nutritious drinks, but, like all other hot fluids, such as soup, they may cause or increase dyspepsia when drunk in quantities at a time. These drinks certainly never produce the very grave organic diseases universal among the intemperate; but it must be remembered that chronic dyspepsia, which they so often cause, is strongly suspected by eminent authorities as one of the origins of chronic Bright's disease.

A NEW COMPOUND DISINFECTANT.

A subscriber in Iowa having written to us for a formula for a good disinfectant, we publish the following, which we find in a reliable English contemporary. It is intended to purify the air of infected places at the time that the mixture is made, whilst the residue, after the chemical action has moderated or ceased, can be used for strewing about floors, or disinfecting drains, etc.

Camphor	200	parts.
Alcohol	500	"
Hypochlorite of lime . .	500	"
Water	500	"
Essence of eucalyptus .	10	"
" clove . . .	10	"
Sulphate of copper . .	40	"

When these substances are mixed rapidly together, a tumultuous chemical reaction takes place, and a number of disinfectant volatile compounds are produced and dispersed through the atmosphere of the room, such as chlorine, chloroform, chloro-camphor, chloral, etc. The odor produced is decidedly agreeable to most people, provided the preparation be not used in too large a proportion. This is a matter of importance, however, when a room has to be disinfected after the inmates have left it.

The hypochlorite of lime in this formula is the ordinary chloride of lime, or bleaching powder; it should be used dry.

This preparation is similar to one which had been recently recommended by Dr. Giurleo, of Naples, who has been making a great number of experiments on disinfection upon a large scale in times of epidemic. It has the double advantage of first purifying the air of a room by destroying the noxious germs diffused through it, and then being afterward applicable to the disinfection of utensils, excreta, water-courses, etc., in the form of a solid powder, after the gaseous and volatile products have been evolved from it.

FORBIDDEN COLORING MATERIALS IN FRANCE.

Serious accidents have frequently resulted from the employment of wrapping paper, used for packing alimentary substances, which has been colored with poisonous materials, and, more frequently still, from the use of liqueurs, confectionery, etc., in which an artificial color has been produced by a substance, the use of which may entail serious consequences to the consumer. The "Prefecture de Police" of Paris have therefore issued the following regulations: Manufacturers and dealers in all kinds of food are forbidden to use the under-mentioned colors, and will be held personally responsible for any accidents which may occur from such use of them.

MINERAL COLORS.

Containing copper: "Cendres bleues," mountain blue. Containing lead: Massicot, minium, pale orange, oxychloride of lead, Cassel yellow, Turner's yellow, Paris yellow, white lead, céruse, silver white, Naples yellow, sulphate of lead, chrome yellow, Cologne yellow, chromate of barium. Containing arsenic: Arsenite of copper, Scheele's green, Schweinfurt green, vermilion.

ORGANIC COLORS.

"Aconit Napel," fuchsine and its immediate derivatives, such as Lyons blue, Eosine, coloring materials containing nitrous compounds, such as napthol yellow, Victoria yellow, tropeolines, xylidine red, etc., etc.

Children's toys must not be colored with poisonous pigments.

From the above, and also from the table of analyses made at the Municipal Laboratory, it will be seen how rapidly and thoroughly the French have advanced with their "Adulteration Act," greatly to the credit of the Government.—*The Analyst.*

CIDER AND STONE IN THE BLADDER.

From the *Lancet* June 14, 1884, we learn that according to Dr. Denis Dumont, stone in the bladder is almost unknown in Normandy, which he attributes to the use of cider in place of wine or beer. In a report on the subject he asserts that during nineteen years' practice in the hospital at Caen he had only four cases of stone in the bladder, in three of which wine was the habitual drink of the patients. A further inquiry having been instituted, it was ascertained that at Bayeux and Falaise, the rarity of stone in the bladder in these regions is attributable to the use of cider, and to a diet containing less nitrogenous substances than that generally adopted in the other provinces, notwithstanding the abundance and cheapness of meat. Cider is therefore considered an excellent remedy for gravel, obesity, and certain forms of inflammation of the stomach. Professor Bouchardat, in a lecture at the School of Medicine, traced the origin of cider to the Africans, and explained that the word cider is derived from the Spanish "cidra," which is the name given to the apple tree and to the liquor extracted from the fruit. Professor Bouchardat stated that the nature of the apples has a great influence on the quality of this "alimentary drink," sweet apples furnishing but little juice and the cider obtained from it containing 3 or 4 per cent. of alcohol. It makes an agreeable drink when freshly made, but soon turns. Consequently sweet apples should not be selected for cider intended to be kept. M. Bouchardat also made the remark that in countries where cider is the common drink there are scarcely any cases of gravel to be met with, and that the subjects of both sexes are muscular and vigorous.

THE HOT WATER CURE.

The London *Lancet* has some very timely remarks under this heading. It is probable that we have not yet begun to appreciate how widespread is the application of this so-called cure, nor how much mischief it is gradually producing. The article in question says very forcibly: There is no lack of evidence that crude or decomposing contents of the alimentary canal may be washed away by copious draughts of hot water, and that the apparatus of digestion thus cleansed at short intervals will work better than when it is coated with *débris* and excreta. On the other hand, it is not less well known that the mucous membrane of the stomach and intestines may become permanently congested, and the essential parts of its structure—the organs of secretion and absorption—rendered habitually swollen and turgid, with the result of impairing their functions by too frequent "fomentation." Like every thing else, the use of hot water as a "cure" needs to be determined by considerations of expediency, based on a precise judgment of the state and conditions in each individual case. If it should become popular to drink hot water largely, we shall soon be called upon to treat patients who have done themselves a lasting and, it may be, serious injury by this practice. If it should happen that where there already exists a tendency to congestion, the blood-vessels are denied the opportunity of contracting and relieving themselves in the intervals of digestion, or if "gastric juice"—to use a popular term—slowly and laboriously secreted in cases with impaired or debilitated glands, be ruthlessly washed away by too frequent drinking, the "advantages" of the hot-water cure are not likely to prove welcome results of a "plan of treatment" which has been misapplied.

PREVENTION BETTER THAN CURE.

A foreign exchange says that the truth of the old adage as to the superiority of Prevention over Cure has never better demonstrated itself than in the case of incurable epidemic disease. The value of its application to epidemic leprosy has of late been carefully investigated by Dr. Vandyke Carter, and the conclusions to which he has been led are to be found in a memorandum on the Prevention of Leprosy by Segregation, in the *Bombay Government Gazette* of March 6, 1884. His paper chiefly consists of a critical examination of the facts and figures presented by the Director of the Leper Hospitals in Norway, where the gradual introduction of a system of segregation has been maintained for many years past; a further object of the paper being to consider the possibility of introducing a similar system into India. In Norway, the results of segregation, whether in asylums or in the patients' own homes, have been decidedly satisfactory. The number of cases on record at the beginning of each year has diminished from 2,863 in 1856, to 1.717 in 1880; the death-rate also has fallen from 14.2 per cent., to 9.3 per cent. A few cases have been discharged as cured, but the permanency of this condition is probably open to question. Still a large number of fresh cases are reported in each year; and it must often happen that before they can have been isolated, or even recognized, they have become *foci* for the local radiation of the disease in their respective districts. It has been, however, confidently prophesied, and the prophecy has been founded on figures, that it will be possible to eradicate the disease altogether, in the fulness of time, by strict adherence to this segregatory method.

COMMUNICATION OF SCARLET FEVER THROUGH A LETTER.

We will have occasion from time to time to note well authenticated and thoroughly reliable reports of cases where the contagious diseases have been carried for considerable distances in letters, which warns us to be very cautious about thoroughly disinfecting *every* article from the sick room of a patient with a contagious disease, before allowing it to be removed. In the *London Medical Times* we read that

Dr. Assmann, of Wohlan, reports that the family of an officer, residing at Dantzic, received a letter, giving an account of a case of scarlet fever. The envelope of the letter was accidentally given to the youngest child to play with, and in six or seven days it had an attack of scarlet fever, and within an interval of two or three weeks two of the other children contracted the disease. The conveyance of the disease by the letter acquires additional confirmation from the fact that for six months prior to the occurrence of the outbreak no case had occurred in the place.

In the *Medical and Surgical Reporter*, March 1, 1884, a case is narrated where it seems almost certain that scarlet fever was transmitted by means of a letter. The mother of a family received a letter, containing a photograph from her brother, with the news that they had just lost a child from scarlet fever. The letter and photograph were handled by all the children, and seven days afterwards one of these children had scarlet fever. No other cases had been in the neighborhood for months, and the children had not been away from their home for two months previously.

MILITARY DRILL IN SCHOOLS.

Through a mistaken kindness in some, and on account of a culpable weakness and negligence in others, home discipline among children is a very rare sight in this country. That it is wrong not to discipline our children, we all admit, but we fail in many instances to carry this admission to its logical remedy. That the best men are those who are quickly ready either to obey or command as time, place and circumstances may indicate, we all know. The traits that have been developed in army and navy officers by the discipline to which they have been subjected at West Point and Annapolis, and to which they are held constantly responsible, does much more to secure for them their popularity and the respect of the public (especially of the ladies), than their showy uniforms, to which it is usually attributed. In them we generally recognize the presence of the better and most manly traits of manhood, which no doubt is due to the developing influence of discipline. Hence it would be well, especially for parents who feel that they are lacking in the power to enforce discipline at home, to send their boys to schools in which military drilling constitutes a part of the curriculum. To say nothing of the physical development, which such wholesome exercise insures (a most important point), the discipline is most potent in developing the best traits in boys, in causing them to learn to obey, and when the proper time comes to command. Mothers and fathers, look within yourselves, and if you recognize a want of disciplinary power, remember that you have that which will aid you to make *good men* of your boys.

EVIDENCES OF A GROWING INTEREST IN HYGIENE.

While willing to admit that an ounce of prevention is worth a pound of cure, yet hitherto the very great majority of persons gave no more support to, and took no more interest in, the teachings of preventive science, than to quietly admit its utility. They seemed negligent and careless about the care of health and the avoidance of disease, and did not want to be bothered about such matters. Now, we are glad to say, all this indifference is rapidly melting away, and daily there is developing among the people, more and more of a desire to become acquainted with the teachings of Hygiene. In England this interest is becoming very strong, as evidenced by the two following facts:

During the first month that the International Health Exhibition was open, it was visited by more than 500,000 persons.

The London correspondent of the *Philadelphia Telegraph* tells us that the only drawing attraction just at present is the Health Exhibition.

To such an extent has the success of the Health Exhibition interfered with the theatres, that it is rumored the managers of the leading metropolitan theatres are thinking of joining forces and addressing a letter of remonstrance to the Prince of Wales for so vigorously supporting these large annual exhibitions, which draw away the usual play-going audiences.

This journal has been started to promote a similar interest among the people of this country. Let all who are interested in the subject, aid in the work, by contributing to its pages.

STREET CONFECTIONERY.

In the course of medical practice it is not uncommon to meet with cases of typhoid fever for which no cause can be discovered in defective drainage or other such local fault of sanitation. The symptoms of the disease, moreover, are not constant. The source of the evil is unrevealed until the absence of every other assignable cause, and the coincidence of some error in diet with the onset of disease, point to this as the beginning of trouble. Some months ago a case of fatal diarrhœa, suggesting poisonous agency, was reported as resulting from the use of tinned meat. Stale fish, milk, or beer, unsound fruit, and a variety of other substances, have led to similar consequences. Quite recently two cases of typhoid fever have been traced by a medical practitioner to the use of coffee, so-called ice creams, and other questionable sweets, such as are hawked about in summer in every thoroughfare of every city. The paltry trash which enters into these cheap compounds cannot be trusted in contact with a human stomach. This is especially the case in summer, when putrefactive changes will arise and perfect themselves in such materials within a few hours. We are all aware how the random habits of poor children, and the rarity of their treats, combine to make them the easy prey of vendors of cheap confectionery. In their interest, it is well to draw attention to some of the evils which are wont to arise in those who unwarily purchase their luxuries at the barrow of the street purveyor.

ZINC IN DRINKING WATER.

Professor F. P. Venable tells us in the *North Carolina Medical Journal* for May, 1884, that the so-called galvanized iron is, of course, nothing more than iron dipped in a bath of zinc, and so superficially coated with it and apparently to a certain extent alloyed with it. The character of the protection afforded the iron is galvanic (hence the name), the two metals forming a galvanic couple so that under the action of any exciting liquid the zinc and not the iron is attacked. That zinc dissolves in potable waters has long since been shown by the experiments of Boutigny, Schaueffele and Langonné. Distilled water and rain water dissolve it more readily than hard water. Especially is water containing carbonic acid capable of this solvent action, and most of our spring waters contain more or less of this acid. So much may be taken up that the water becomes opalescent and acquires a distinctly metallic taste. It seems that by the action of the water, hydrate and carbonate of zinc are gradually formed, and that this action is more rapid in the presence of certain saline matters, but is weakened by the presence of calcium salts.

He concludes as follows: "It is evident that when the dangerous nature of zinc as a poison is taken into consideration, the use of zinc or zinc-coated vessels in connection with water or any food-liquids should be avoided, and indeed prohibited, wherever the health officers have it in their power to do so."

RULES FOR BATHERS.

The Royal Humane Society recommends to the notice of the English public a code of rules published by the Society, and entitled "Caution to Bathers." They are as follows:

Avoid bathing within two hours after a meal.

Avoid bathing when exhausted by fatigue or from any other cause.

Avoid bathing when the body is cooling after perspiration.

Avoid bathing altogether in the open air if, after having been a short time in the water, it causes a sense of chilliness with numbness of the hands and feet.

Bathe when the body is warm, provided no time is lost in getting into the water.

Avoid chilling the body by sitting or standing undressed on the banks or in boats after having been in the water.

Avoid remaining too long in the water—leave the water immediately if there is the slightest feeling of chilliness.

The vigorous and strong may bathe early in the morning on an empty stomach.

The young, and those who are weak, had better bathe two or three hours after a meal—the best time for such is from two to three hours after breakfast.

Those who are subject to attacks of giddiness or faintness, and those who suffer from palpitation and other sense of discomfort at the heart, should not bathe without first consulting their medical adviser.

THE ANALYSIS OF CUCUMBERS.

The popular idea that cucumbers are unhealthy would seem to be almost a superstition, since we constantly see them eaten in large quantities by persons who do not appear to suffer any evil consequences. But by one who observes, it will be noted that the greatest number of cases of colic or stomach-ache attributed to the eating of cucumbers are found to occur in cities, while those who raise their own, or who buy them from some neighboring farmer, may eat them with impunity. The reason for this has been furnished by Dr. Waller, in his report to the Health Department of New York, who tells us that upon analyzing cucumbers that were offered for sale, he found them to contain about 37 grains of sulphate of copper to the pound. This drug (very poisonous in large quantities) is used for the purpose of imparting a bright green color to the vegetable. Now that you know what causes the bright green color, hitherto so sought after, and since you know that it is poisonous, you have the means in your own hands of enjoying cucumbers with impunity. Pass by the bright green, tempting-looking articles, and in a very short time the dealers will come to learn that you do not want "coppered cucumbers," and this dangerous adulteration will be abandoned.

SANITARY FOREST CULTURE.

Dr. J. F. A. Adams read a paper on this subject before the last meeting of the Massachusetts Medical Society, in which he spoke of the three-fold influence of forests: 1. On the flow of streams. 2. The moderation of the climate. 3. The prevention of malaria. Streams are found to be much more regular in their flow when they arise in forests, these acting as reservoirs for the storage of moisture, and preventing the too rapid melting of snows, and hence, heavy spring freshets. Many rivers are now subject to variations from overwhelming floods to an almost dry bed, that formerly, before the forests of their water-sheds were cut away, were much more regular in their flow.

It is a well-recognized fact that in many places malaria now exists, where before the removal of the forests it was unknown; and also, that the planting of trees in malarial districts may have a most beneficial effect. States should pass laws protecting forests, taking control of them, if necessary; should encourage a knowledge of forestry by the establishment of schools, and plant large tracts of what are now waste lands, with timber.

INFANTICIDE IN FRANCE.

A report has been recently made to the President of the French Republic, in which it appears that in 1882 legal proceedings were taken with respect to 171 cases of infanticide, 19 abortions, and 177 of what is termed the suppression or exposition of infants. The report then goes on to explain that the proportion of acquittals for each of these crimes amounts to 42, 55, and 61 per cent. respectively. As we may be morally certain that nearly every one of the accused was in reality guilty, the enormous proportion of acquittals must seem inexplicable to those who are not intimately acquainted with the conditions of French society. Just, however, as this official report was in course of publication, a seamstress, living in a garret in the Boulevard Voltaire, committed suicide by means of charcoal fumes. The following words were found on the mantel-piece: "I die because I am abandoned at the moment I am about to become a mother." This simple incident explains the statistics we have quoted. The search for proof of parentage is forbidden by the French law, and French juries, knowing that the law gives no protection to betrayed and abandoned women, cannot be made to convict, even where the guilt is patent.—*Medical and Surgical Reporter.*

WHAT ONE CHOLERA STOOL MAY DO.

In a foreign exchange we read that a single cholera stool, gaining access to the source of a large water or milk supply, might presumably decimate a population reckoned by tens of thousands; while the same stool, finding its way into a stagnant sewer, might exhale its poison into a thousand houses, where there is no efficient means of cutting off the invasion of sewer gas. These facts have often enough been pointed out in connection with typhoid, but seem to have been ignored n calculating the prospects of cholera n this country. It is worth while callng attention to them in order to forevarn our sanitary authorities, the proession, and the public. By gaining or ;iving the earliest information of susicious cases, by isolating them and lisinfecting their excreta, by watching ver the sources of our water supply, nd by thoroughly flushing and disinecting the sewers, they may hope to educe the danger to a minimum; while ndividuals, by resolving to partake of o water or milk which has not been vell boiled, will probably save themelves and their families from infection, nd at the same time conduct a most nteresting experiment in cholera preention.

AUSES AND CURE OF CORPULENCE.

The *New York Medical Record* tells s that a stout, active man began to suerintend the working of new beer in brewery, and occasionally to sit up at ight to watch the sweet-wort, an emloyment requiring neither activity nor abor. Gradually he began to drink nuch new beer, in addition to leading quiet and inactive life; he commenced o increase in bulk, and continued to nlarge until he became of such unieldy size as to be unable to move bout, and could not get up from the itting or lying posture without help. lis cheeks hung down to his shoulders nd breasts, and finally he was dismissed s useless. He returned in two years, eighing but little over one hundred nd forty pounds. His story was that, eing unable to work, he was at first lmost starved. When he became suffiiently reduced in size to be able to valk about, he engaged as farm laborer, nd was able, finally, to go through very hard work for a whole day on an extremely small pittance of bread and cheese. His health had never been so good as it then was, and his only drink was water.

PRESERVED MEATS.

Drs. Ungar and Bodlander, of Bonn, have recently been engaged in making an inquiry as to whether the contents of preserved meat-tins contain any appreciable quantity of the metal of which the tins are composed, and the conclusions they have arrived at are that a not inconsiderable quantity of tin passes over into the conserve. They could not decide upon the precise form in which the tin was present, but they ascertained the fact that it was not in soluble form, or, at any rate, in a combination not readily soluble. Experiments on dogs and rabbits showed that the tin was absorbed by the bowels, and it was detected in the urine, heart, liver, kidney, spleen, brain, and muscles. They explain the fact of so little being heard of tin-poisoning in human beings by the comparatively recent introduction of tinned meats as an article of food, by their high price leading to a minimum consumption, and finally to the presence of other metals, especially lead, used in soldering, to which symptoms of poisoning, when such do occur, are generally attributed.

A PLEASANT TONIC FOR WARM WEATHER.

Now that the peach season is at hand, the following tonic, which we note in an Italian journal, will be found both agreeable and beneficial to those who, weak and prostrated by hard work in warm weather, feel the need of a tonic. Take of good ripe peaches, free from the stone, 1,000 parts (by weight); iron filings, free from copper, 50 parts, and sugar, 300 parts. Put the peaches in an iron vessel and mash them up, mixing sufficient water with them to make a paste; add the iron filings and let the whole macerate for ten days, stirring frequently; then filter through a thick cloth to obtain the extractive matter. A little water is poured on the residue and filtered through paper. The filtrates are mixed, and to the fluid, which is of a brownish-green hue, is added the sugar. The mixture is now simmered at a moderate heat (not over 60° C.) to the consistence of a syrup. A clear greenish-brown fluid is the result, having the taste and smell of peaches.

ARTIFICIAL FOOD FOR CHILDREN.

There has been great discussion as to the qualifications of condensed milk as a substitute for the human article. Some men strongly advocate its use, while others bitterly condemn it. After reporting a case of infantile scurvy, in a foreign exchange, Dr. Edmond Owen says:

"The opinion which I have been compelled to form in my work in the out-patient rooms of the Children's Hospital, is that the worst nourished of the hand-fed infants are those that have been reared upon condensed milk and the various patent food stuffs; and that whenever an infant cannot have human breast-milk, the best substitute will be found in fresh cow's milk.

ICE-WATER AND RAW TOMATOES IN GERMANY.

In Prague, says a correspondent of the *Medical News*, one misses ice-water and our various cooling appliances very much. It is possible, with a good deal of trouble, to get a glass of water with a few pieces of dirty ice in it; but it always seems to excite so much surprise, alarm, and horror in the spectators, that one has to seek out a secluded corner of the restaurant to drink it. I do not know which they regard as the worse—drinking ice-water or eating raw tomatoes. Now, I am very fond of the latter, and always eat them when I can; but from seeing a crowd around my part of the room every day, I begin to have a suspicion that the proprietor uses me for an advertisement, and that crowds come daily to see the great American tomato-eater. Ice-water seems especially to be regarded as a deadly poison, the cause of all the dyspepsia in America.

OCEAN-GOING STEAMERS AS DISSEMINATORS OF DISEASE.

After commenting on the miserable hospital accommodations of ocean steamers, and criticising the parsimonious and short-sighted policy of the owners of these vessels, which places the lives of their patrons in jeopardy, because they will not pay enough to secure the services of good physicians, the *British Medical Journal* says: It seems to have been abundantly proven that the time has come when England and America ought to combine together to form a marine medical service of competent men, responsible, not to the owners, but to the governments of the two countries. The carrying trade is largely in the hands of England, and it behoves her to stir herself to remedy this glaring evil; otherwise, the United States will be fully justified in taking the matter out of her hands altogether, and that shortly.

HOW TO LIMIT THE SPREAD OF SCARLET FEVER.

Dr. Jamieson (*Edinburgh Medical Journal*, March, 1884), thinks that very much can be done in this direction by the use of warm baths nightly, of the affected child and all who come closely into contact with him, the body being afterwards greased with an antiseptic ointment (the one which he himself employs contains 30 grains of carbolic acid and 10 grains of thymol to the ounce), and by the regular application of a solution of boroglyceride to the throat.

If these precautions are taken at the very outset of the disease and kept up through the entire course, cases which can not be thoroughly isolated may be rendered innocuous, so far as transmission of the disease is concerned. The author adds that all cloths and bedding should be steeped in a dilute solution of carbolic acid.

AN EPIDEMIC OF PNEUMONIA EXPLAINED.

Dr. Emmerich, Assistant at the Munich Hygienic Institute, discovered in some of the filling-in under the floor of a prison in Amberg an extraordinary quantity of the characteristic germs, which have been described by Friedlander as the germ of pneumonia, and which, on subsequent examination, were found to be identical with them. This appeared to explain the occurrence of a great epidemic of pneumonia, which took place at Amberg in 1860, in which no less than 46 deaths occurred in 161 cases. The fungi were found under the floor in the sleeping-wards in which these patients had lain. In the wards of the prison which were free of pneumonia, none of these peculiar germs have been as yet found.

FOOD OF THE ANCIENTS.

Camels' and dromedaries' flesh, especially the heels, were esteemed. Mæcenas, according to Pliny, delighted in donkey flesh; that of the wild ass was preferred to venison. The wild boar was called *animal propter convivianatum*, and the classical portion of the sow was *vulva nil dulcius ampla.* Plutarch says the gravid sow was actually trampled to death to make a delicious mess "fit for the gods." The *Porcus trojanu* was made by stuffing a pig with birds and various small animals. Fowls were drowned in Falernian wine. Peacocks raised in the island of Samos were sold to the value of $10,000 per year for food.

REDUCING WEIGHT.

The *New York Medical Record*, June 14, 1884, tells us that a gentleman weighing thirty-two stone and nine pounds, or four hundred and fifty-seven pounds, put himself upon a strict diet of four ounces of meat, six ounces of bread, and two pounds of liquid per day. In one week he lost thirty pounds, and in six months one hundred and thirty-four pounds. His health and spirits were much improved, and he was very active for a man of twenty-three stone, or three hundred and twenty-two pounds.

A HOME-MADE FOUNTAIN PEN.

Take two ordinary steel pens of the same pattern, and insert them in the common holder. The inner pen will be the writing pen. Between this and the outer pen will be held a supply of ink, when they are once dipped into the inkstand, that will last to write several pages of manuscript. It is not necessary that the points of the two pens should be very near together, but if the flow of ink is not rapid enough the points may be brought nearer by a bit of thread or a minute rubber band.—*American Inventor.*

TO REMOVE TATTOO MARKS.

These are said to be removed by the following plan:—Wash the part thoroughly with dilute acetic acid, half an hour after which apply the following:

Caustic potash	4 grs.
Water	1 ounce.

After the lapse of another half hour use:—

Dilute hydrochloric acid. .	1 dram.
Water	1 ounce.

This should be repeated daily; stronger solutions may be applied, if necessary, if they can be borne by the patient.—*The Druggist.*

RULES OF SHORT LIFE.

Lord Bacon's signs of short life are quick growth, fair, soft skin, soft, fine hair, early corpulence, large head, short neck, small mouth, fat ear, brittle, separated teeth. A modern observer has supplemented these by the following: Going into a saloon twelve times a day, sitting on a railroad crossing, and writing original poetry. — *Southern Clinic.*

THE COWS OF NEW YORK.

The cows of New York, it is stated, are to be subjected to a systematic inspection under the direction of the Board of Health, with the double purpose of aiding the Government officials in checking contagious pleuro-pneumonia and guarding against the spread of tuberculosis by the milk of diseased cows.

HUTCHISON'S PHYSIOLOGY AND HYGIENE.

We have received from Messrs. Maynard & Clark, 734 Broadway, New York City, a copy of a useful little book, by Dr. Joseph C. Hutchison, entitled "A Treatise on Physiology and Hygiene, for Educational Institutions and General Readers." It is well illustrated, contains a great deal of interesting material, and seems well adapted to fulfil its mission.

ITEMS.

THE New York City Health Board found about one-twentieth of a grain of arsenious acid in two ounces of certain specimens of coffee examined.

A REWARD of $100,000 is provided for in a bill recently introduced into the United States Senate, to be given to any person who shall discover the true germ of yellow fever, or any certain way of preventing or materially modifying the spread of the disease.

AN INVALID.—"Your daughter has a touch of malaria," said a physician to a New York lady. "I will call again in the morning."

The mother then went to her daughter's room with a look of anxiety on her face, and said:

"My dear, the doctor says you have malaria. What is it? Is is dangerous?"

"Not very, mamma—and oh, it's so aristocratic! I will wear my blue silk wrapper, and we must get some cut-glass bottles for the medicines, and if any of the Snuffles girls call, have them brought to my room. It will take them down a peg or two, I can tell you."

And the sick young woman looked the very picture of happiness and content.

The Annals of Hygiene.

VOL. I. PHILADELPHIA, SEPTEMBER 15, 1884. NO. 3.

CHOLERA PRECAUTIONS IN FRANCE.

Although we have already had a great deal to say about cholera, yet as we desire to make the "ANNALS" a work for reference, we deem it well to publish the following rules for protection against cholera, which have been promulgated by the Comité Consultif d'Hygiene Publique of France.

Excessive fatigue, either by traveling or for pleasure, as well as by prolonged wakefulness and cold baths of long duration, should be avoided. Chilling of the body, especially during sleep, or drinking large quantities of cold water, are very dangerous in time of cholera. The use of bad water is one of the most frequent causes of cholera. When not perfectly sure of the good quality of the water used for drinking and cooking purposes, it is better to boil a supply for each day, as boiling makes it perfectly safe. A small quantity of tea, hops, or bitter or aromatic plants, or wine, may be added to the water to be boiled. The following drink is recommended as excellent for quenching the thirst without drinking a large quantity of fluid: Rum, 40 parts; alcoholic tincture of gentian, 4 parts; fresh water, 1000 parts, by weight. It is better to filter this through charcoal. Table mineral waters are excellent.

Bakers should be forbidden to make bread with water from wells placed inside of a house, when latrines and manure heaps are sufficiently near to soil the water, and they should be absolutely forbidden to use such wells in time of cholera.

There is no reason why fruits should not be used in moderation, provided they be of good quality. They should always be peeled, and it is better to eat them cooked. This applies also to vegetables, which should be cooked. Every indiscretion of diet should be avoided. It is very dangerous to drink much alcoholic liquor; complete abstinence is better than a slight excess. Ices and iced drinks taken rapidly during digestion, or while the body is perspiring, are liable to cause choleraic attacks, and should be avoided.

Precautions in case of an attack. The least digestive troubles may invite an attack of the cholera, consequently they should never be neglected, and a physician should be sent for immediately, as an attack may be prevented or arrested by timely active treatment.

Nurses for cholera patients. No person in attendance upon a cholera patient should go without rest for more than twelve hours. They should have a double quantity of wine, and of coffee at night. Every day, after the morning visit, the physician should see to the state of health of these persons, and prescribe, when necessary, rest and suspension of duty.

Transmission of cholera. Cholera is most frequently propagated by vomited matter and alvine evacuations; and these discharges are very little less dangerous in mild cases than in the most severe. They should be disinfected, and removed from the sick-room as soon as possible.

Disinfection. Every latrine in a house may be poisoned, when emptying into one discharges which have not been disinfected. The disinfectants to be recommended are first, sulphate of copper, next, chloride of lime, and chloride of zinc. Carbolic acid and copperas are insufficient. To each alvine evacuation or each quart of liquid matter, a large glassful of the following solution should be added: Sulphate of copper, of commerce, ʒxiij; water, Qj; or a small coffeecupful of chloride of lime in powder (about ℥xx); or a solution of chloride of zinc (1 to 100). It is best to place these in the bottom of the vessel intended to receive the dejections.

Linen. Soiled body or bed-linen should be plunged, before being taken out of the room, into a tub containing either a gallon of the sulphate of copper solution, or two cupfuls of dry chloride of lime. They should be put into the tub, and wrung out—about half an hour in the copper solution is sufficient. This solution should be made fresh every day. When removed from the solution the linen should be immediately boiled, before using soap. Disinfection may also be performed with sulphur in the following manner: The clothes are hung up in an empty closet, all the openings of which are thoroughly closed, and a little water is sprinkled on the floor to make the air moist: ʒvij of flowers of sulphur to the cubic yard are then burned. The sulphur should be placed in a vessel placed at the bottom of a small basin half full of moist sand. The sulphur is lighted and the person leaves the room immediately, to return and open the closet in about twenty-four hours. When the clothes are very much soiled, they should be burned.

The floors. The soiled spots on the floors and drapery about the room should be immediately washed with a rag dipped in the copper solution, or in milk of chloride of lime, made by mixing a spoonful of the dry lime with a quart of water. The rag should then be burned.

The beds. So far as possible, the beds occupied by cholera patients should be protected by paper to prevent soiling of the mattresses. The paper should be burned afterwards. Mattresses touched or soiled should be moistened by means of a rag or a piece of wadding or tow, with the copper solution (1 part in 5 of water), or with the chloride of lime solution (a spoonful of dry lime to a quart of water). They should afterwards be removed, in special vehicles, and disinfected in an oven, either by steam or heat, 220° F. If this cannot be done, they should be placed on stands in a close room, and disinfected by burning sulphur, not less than ʒvij of flowers of sulphur to the cubic yard of space in the room.

Water-closets. Twice a day, in houses in which there is cholera, two quarts of the copper solution should be emptied into the basins, or two cupfuls of lime in two quarts of water. A cupful of the copper solution, or of solution of chloride of zinc, should be emptied every evening into the drain pipes about the house. Wherever it is possible, siphons or U-tubes should be attached, so as to prevent the entrance of gas into the house.

Provisions and everything to be eaten should be kept in a tight case, and every day half a glass of copper solution should be poured over their surface, or one or two spoonfulls of chloride of lime, in powder. The kitchen refuse should be placed every day in a close metallic case, and sprinkled with chloride of lime before night. Every morning this case should be emptied by the city carts, a quantity of chloride of lime being placed at the bottom of the case when it is emptied.

The following are the general rules for public hygiene:

Public assemblages. In time of cholera there should be no assemblages of people, as in this manner the disease may be easily propagated.

Accumulations of filth. The accumulation of dirt and filth of any kind in the neighborhood of houses, should be strictly prohibited. They should only be disturbed and removed after having been disinfected with one of the materials mentioned above. Nor should any stagnation in sewers or drains be allowed; they should be disinfected and flushed. Scavenging should only be done with hermetically sealed receptacles, working by steam, and burning the gas under heaters. After each operation the place should be disinfected. All drains should be supervised and disinfected by the public authorities.

Compulsory notification. The immediate notification to the authorities of every case of cholera, should be obligatory.

Transportation of cholera patients. When a case occurs in a hotel or lodging-house, the authorities should at once be notified. The patient should not remain in the house, even for twenty-four hours, but should be carried to a specially provided place.

Disinfection of rooms. A room which has contained a cholera patient, even for the shortest time, should be disinfected with sulphur.

Disinfection of infected departments. The rooms occupied temporarily by a cholera patient should not be occupied again until it has been completely disinfected by burning ℥vij of sulphur to the cubic yard.

Special ambulances. When several persons occupy the same room and one becomes infected with cholera, he should immediately be taken away in a hospital or special ambulance, to some place where the chances of recovery are greater and of infecting the others are removed.

Inspection of houses. In every house in which a case of cholera occurs, an immediate inspection should be made by a municipal officer, first to ascertain the true nature of the attack, and then to take active measures for disinfection. If it has not been thoroughly disinfected, it should be disinfected anew, the lodgers being compelled to vacate for twenty-four hours.

Laundries. Public laundries should be under the strictest supervision, and particular care be taken that the clothes of cholera patients are not washed together. As stated before, these should be thoroughly disinfected before being washed.

Distribution of disinfecting materials. Each police station should be a depot for the storing of disinfecting materials, put up in bottles or packages, of flowers of sulphur, dry chloride of lime, pulverized sulphate of copper, and solution of chloride of zinc, 45 per cent., with labels clearly stating how they should be used. These should be gratuitously distributed to persons having an order from a physician or a municipal officer.

Carriages. A sufficient number of carriages should be set apart for the sole purpose of coveying cholera patients. They should be disinfected every day. Special ambulances and urgency rooms for the temporary use of cholera patients should be furnished by the authorities.

SANITARY PRECAUTIONS TO PREVENT THE SPREADING OF INFECTIOUS DISEASES.

The Health Department of the District of Columbia issues the following circular to the public:

"*Cleanliness* and *ventilation* are in all cases and everywhere of the first importance. The diseases which are spread chiefly from place to place and from person to person by means of their own infection or contagion, are to be regarded and treated as enemies, to be resisted and stamped out. The propagation of some of them with the help of local causes, seen or unseen, and the fatality, as well as spread, of each one of them, is increased by personal uncleanliness and local unhealthfulness. Cholera, typhoid fever, diphtheria, measles, scarlet fever, puerperal fever, and small-pox, are the most pestilent of these *infectious diseases.* Typhoid fever and malignant cholera are infectious by means of excremental matters rather than from bodily emanations. They spread by personal contagion, and originate among crowded and uncleanly people. These diseases and all infections and contagions require *disinfection* and all sanitary precautions that *prevent infection.*

"*Asiatic cholera* is again on its deadly march. The Atlantic ocean and the organized resources of sanitary knowledge and authority in our country, and in European ports constantly in communication at once with our shores and the infected regions of the Mediterranean, are barriers trusted thus far for defense. The possibility and facilities for the introduction of this disease upon this continent are too obvious to be disregarded. The history of former invasions by cholera seems to warrant the opinion that its reappearance here is probable. It is a public duty to be prepared for it.

"The disease, as reported in Southern Europe, presents the same threatening aspects that it did in August, 1865. It was then conveyed to our shores in a definite manner, and to about the same series of resting-places and fatal points of outbreak that it now threatens to attack. The facilities for the unsuspected and very speedy movement of this pest from the Mediterranean shores to the American are greater now than they were in 1865. The means of exact sanitary knowledge and quarantine police for arresting and stamping out the transportable cause of it are also greater. It is safe to conclude that the resources of sanitary resistance have so greatly increased that the certainty of success in the public duty of preparation and prevention will now warrant the assurance that no city, village, or town that is found prepared and ready for the announcement that 'Asiatic cholera has come' will be invaded by it, if every case that occurs in, or is brought to the place, receives adequate sanitary care. Such considerations both justify and demand the publication of this circular.

"It is now conceded that there is a specific infective cause of Asiatic cholera, called its *contagium*, by which it spreads as rapidly as the persons suffering ever so lightly from it may go from port to port and place to place; and it has proved true in every country that this *contagium* ceases to be repropagated beyond the sanitary lines which separate the cleansed, drained and ventilated premises and well-conditioned inhabitants from those that are filthy, undrained, badly sewered, crowded and unventilated, or where polluted water or crude food and harmful beverages prepare the bowels for the fatal operation of the cholera poison; and as even the light and painless diarrhœa of cholera may infect the earth and the waters wherever the travelers from cholera districts go, the modern facilities of travel and transportation now tend to spread cholera over all the continents, in a single year, as readily as it was conveyed in the fifteen years of slower marching in its first great invasion.

"The presence of excremental filth, uncleansed dwellings, stagnant pools, polluted water, and of badly-housed and imprudent people, will invite cholera whenever it appears in any city on our Atlantic seaboard. These common sources of harm to health that exist in numerous communities will endanger the cities and villages of the entire country, as well as the particular places that will be first to suffer.

"We say now to the people of this District, let each and every householder enforce such thorough scavenging and cleansing, such cleaning of sewers, drains and ditches, and such ventilating, drying, lime-washing and disinfecing of cellars and all damp and unclean places, that, if cholera comes, its infective germs shall find no soil or foul surface in which to propagate epidemically."

The following are

INSTRUCTIONS FOR DISINFECTION.

Disinfection is the destruction of the poisons of infectious and contagious diseases.

Deodorizers, or substances which destroys smells, are not necessarily disinfectants, and disinfectants do not necessarily have an odor.

Disinfection cannot compensate for want of cleanliness nor of ventilation.

I. *Disinfectants to be Employed.*

(1) Roll sulphur (brimstone) for fumigation.

(2) Sulphate of iron (copperas) dissolved in water in the proportion of one and a half pounds to the gallon—for soil, sewers, etc.

(3) Sulphate of zinc and common salt, dissolved, together, in water in the proportions of four ounces sulphate and two ounces salt to the gallon—for clothing, bed-linen, etc.

Disinfection of Premises, etc. Cellars, yards, stables, gutters, privies, cesspools, water-closets, drains, sewers, etc., should be repeatedly and profusely drenched with copperas solution, which is easily kept ready for use, at full strength, by hanging a basket containing about sixty pounds of copperas in a barrel of water, and renewing the supply from time to time.

In the Sick-room. The most available agents are fresh air and cleanliness. The clothing, towels, bed-linen, etc., should, on removal from the patient and before they are taken from the room, be placed in a pail or tub of the zinc solution, boiling hot, if possible.

All discharges should either be received in vessels containing copperas solution, or, when this is impracticable, should be immediately covered with copperas solution. All vessels used about the patient should be cleansed with the same solution.

Unnecessary furniture, especially that which is stuffed, carpets and hangings, should, when possible, be removed from the room at the outset; otherwise, they should remain for subsequent fumigation and treatment.

Fumigation with sulphur is the only practicable method for disinfecting the house. For this purpose, the rooms to be disinfected must be vacated. Heavy clothing, blankets, bedding, and other clothing which cannot be treated with zinc solution, should be opened and exposed during fumigation as directed below. Close the rooms as tightly as possible, place the sulphur in iron pans supported upon bricks placed in wash-tubs containing a little water, set it on fire by hot coals or with the aid of a spoonful of alcohol, and allow the room to remain closed for twenty-four hours. For a room about ten feet square, at least two pounds of sulphur should be used: for larger rooms, proportionally increased quantities.

All woolen clothing, silks, furs, stuffed bed-covers, beds, and other articles which cannot be treated with zinc solution, should be hung in the room during fumigation, their surfaces thoroughly exposed, and their pockets turned inside out. Afterwards, they should be hung in the open air, beaten and shaken. Pillows, beds, stuffed mattresses, upholstered furniture, etc., should be ripped open, the contents spread out and thoroughly fumigated. Carpets are best fumigated on the floor, but should afterward be removed to the open air and thoroughly beaten. Many of such articles may be disinfected in an oven or steam-heated tank, at a temperature of from 212° to 250° Fahr.: maintained for five or six hours.

The disinfectants above named are simple, safe, reliable, cheap, and easily obtainable. They are recommended as best for the purposes named by the committee of experts, of which Prof. Chandler of New York was chairman.

THE NATIONAL VALUE OF PUBLIC HEALTH.

Hygiene teaches us that observance of the laws of health not only redounds to the advantage of the individual, but that the prosperity and wealth of a nation is very much influenced by the health of its people. To illustrate this point most forcibly, we note the following from an address by Sir James Paget at the International Health Exhibition in London:

"I think, then, that we cannot escape from the reasons to believe that we lose in England and Wales, every year, in consequence of sickness, 20,000,000 of weeks' work; or, to say, as much work as 20,000,000 of healthy people would do in a week.

"The number is not easily grasped by the mind. It is equal to about one-fortieth part of the work done in each year by the whole population between fifteen and sixty-five years old. Or, try to think of it in money. Rather more than half of it is lost by those whom the Registrar-General names the domestic, the agricultural, and the industrial classes. These are rather more than seven millions and a half in number, and they lose about 11,000,000 of weeks, say, for easy reckoning, at five dollars a week; and here is a loss of $55,000,000 from what should be the annual wealth of the country. For the other classes, who are estimated as losing the other 9,000,000 weeks' work, it would be hard and unfair to make a guess in any known coin; for these include our great merchants, our judges, and lawyers, and medical men, our statesmen and chief legislators; they include our poets and writers of all kinds, musicians, painters, and philosophers; and our princes, who certainly do more for the wealth and welfare of the country than can be told in money. . . .

"Take, for example, such a disease as typhoid fever—that which Mr. Huxley has rightly called the scourge and the disgrace of our country. It has of late destroyed in England and Wales, among persons in the working time of life, nearly 4000 in the year. Its mortality is about fifteen per cent.; so that if, in any year, 4000 die of it, about 23,000 recover from it. Of these the average length of illness is, on the authority of Dr. Broadbent, about ten weeks. Here, therefore, from one disease alone, and that preventible, we have an annual loss of 230,000 weeks' work, without reckoning what is lost with those who die. And the same may be said of nearly all the diseases that are most prominent in the bills of mortality. The record of deaths, sad as it is, tells but a small part of the losses of happiness and welfare that are due to sickness. It is as if, in a great war, we should have a regular return of the numbers killed, but none of the numbers wounded, though these, more than the killed, may determine the issue of the war. . . .

"But, some may ask, can these things be prevented? Are they not inevitable consequences of the manner of life in which we choose or are compelled to live? No; certainly they are not. No one who lives among the sick can doubt that a very large proportion of the sickness and the loss of work which he sees might have been prevented; or can doubt that, in every succeeding generation, a larger proportion still may be averted, if only men will strive that it may be so.

"Let me enumerate some of the chief sources of the waste, as they appear to one's self in practice.

"Of the infectious fevers, small-pox might be rendered nearly harmless by complete and careful vaccination. Typhus and typhoid, scarlet fever and measles, might, with proper guards against infection, be confined within very narrow limits. So, probably, might whooping-cough and diphtheria.

"Of the special diseases of artisans there are very few of which the causes might not be almost wholly set aside. Of the accidents to which they are especially liable the greater part, by far, are due to carelessness.

"Of the diseases due to bad food and mere filth; to intemperance; to immorality; in so far as these are self-induced, they might, by self-control and virtue, be excluded. And with these scrofula, rickets, scurvy, and all the wide-spread defects related to them, might be greatly diminished.

"It can only be a guess—but I am sure it is not a reckless one—if I say, that of all the losses of work of which I have spoken, of all the millions of weeks sadly spent and sadly wasted, a fourth part might have been saved, and that henceforth, if people will have it so, a still larger proportion may be saved. . . .

"We may become the more sure of what may be done by looking at what has been done already. Let me show some of it; it will be a relief to see something of the brighter side of this picture.

"In a remarkable paper lately read before the statistical society Dr. Longstaff says: 'One of the most striking facts of the day, from the statistician's point of view, is the remarkably low death-rate that has prevailed in this country during the last eight years.' In these years the annual death-rate has been less than in the previous eight years in the proportion of two deaths to every 1000 persons living. The average number of deaths has been 50,000 less in the last than in the previous eight years. Doubtless many things have contributed to this grand result, and it is not possible to say how much is due to each of them; but it would be unreasonable to doubt that the chief good influence has been in all the improved means for the care of health which recent years have produced. This is made nearly certain by the fact that the largest gains of life have been in the diminution of the deaths from fever, and of the deaths in children under fifteen years old, for these are the very classes on which good sanitary measures would have most influence.

"The annual number of deaths from typhus, typhoid, and the unnamed fevers, has been about 11,000 less than it was about twenty years ago. The annual number of deaths of children under five years old has been about 22,000 less than it was; and that of children between five and fifteen has been upwards of 8000 less.

"These are large results, and though they tell of only deaths, yet they bear on the chief subject I have brought before you—the working power of the nation; for, however much we might assign to improved methods of medical treatment of fever, yet the diminished number of deaths means a very large diminution in the total number of cases. The deaths during the working years of life were 6500 less; and, this being so, we may hold that, if the average mortality was say, twenty-five per cent., the diminution in the total number of cases must have been at least 25,000; and if we may believe, as before, that each of these involved ten weeks of sickness, we have, in these fevers alone, a clear saving of 185,000 weeks' work in every year. . . .

"It is said, whether as fact or fable, that the pursuit of science and of all the higher learning followed on the first exercise of the humanity which spared the lives of sick and weakly children; for that these children being allowed to live, though unfit for war or self-maintenance, became thinkers and inventors. But science and art are not dependent upon invalids; minds are not the more free or the better now for having to work in feeble bodies; each nation needs for its full international influence both health and knowledge, and such various and variable health, that there should be few places on earth or water in which some of its people cannot live, and multiply, and be prosperous.

"If, therefore, we or any other people are to continue ambitious for the extension of that high mental power of which we boast, or for the success of the bold spirit of enterprise with which we seek to replenish the earth and subdue it; if we desire that the lessons of Christianity and of true civilization should be spread over the world, we must strive for an abundance of this national health, tough, pliant, and elastic, ready and fit for any good work anywhere."

DIET FOR PERSONS SUFFERING WITH DIABETES.

It is well known that a very important factor in staying the progress of this terrible disease is to be found in the regulation of the diet. The question is asked, what is the best food for a diabetic? To answer it, we publish the following diet table, that has been formulated by the distinguished Dr. Austin Flint, Jr., of New York.

Breakfast.—Oysters stewed, without milk or flour; clams stewed, without milk or flour.

Beefsteak, beefsteak with fried onions, broiled chicken, mutton or lamb chops, kidneys, broiled, stewed, or deviled; tripe, pig's feet, game, ham, bacon, deviled turkey or chicken, sausage, corned-beef hash without potato, minced beef, turkey, chicken, or game, with poached eggs.

All kinds of fish, fish-roe, fish-balls, without potato.

Eggs cooked in any way except with flour or sugar, scrambled eggs with chipped smoked beef, picked salt cod-fish with eggs, omelets plain or with ham, with smoked beef, kidneys, asparagus-points, fine herbs, parsley, truffles, or mushrooms.

Radishes, cucumbers, water-cresses, butter, pot-cheese.

Tea or coffee, with a little cream and no sugar. (Glycerine may be used instead of sugar if desired.)

Light red wine for those who are in the habit of taking wine at breakfast.

Lunch or Tea.—Oysters or clams cooked in any way except with flour and milk, chicken, lobster, or any kind of salad except potato, fish of all kinds, chops, steaks, ham, tongue, eggs, crabs, or any kind of meat, head-cheese.

Red wine, dry sherry, or Bass's ale.

Dinner.—Raw oysters, raw clams.

Soups.—*Consommé* of beef, of veal, of chicken, or of turtle, *consommé* with asparagus-points, *consommé* with okra, ox-tail, turtle, terrapin, oyster or clam, without flour or milk; chowder, without milk or potatoes, mock turtle, mullagatawny, tomato, gumbo *filet*.

Fish, etc.—All kinds of fish, lobsters, oysters, clams, terrapin, shrimps, craw-fish, hard-shell crabs, soft-shell crabs. (No sauces containing flour or milk).

Relishes.—Pickles, radishes, celery, sardines, anchovies, olives.

Meats.—All kinds of meat cooked in any way except with flour, all kinds of poultry without dressings containing bread or flour, calf's head, kidneys, sweet-breads, lamb-fries, ham, tongue, all kinds of game; veal, fowl, sweet-breads, etc., with currie but not thickened with flour. (*No liver.*)

Vegetables.—Truffles, lettuce, romaine, chiccory, endive, cucumbers, spinach, sorrel, beet-tops, cauliflower, cabbage, Brussels-sprouts, dandelions, tomatoes, radishes, oyster-plant, celery, onions, string-beans, water-cresses, asparagus, *artichauts*, Jerusalem artichokes, parsley, mushrooms, all kinds of herbs.

Substitutes for Sweets.—Peaches preserved in brandy without sugar, wine-jelly without sugar, *gelée au kirsch* without sugar, *omelette au rhum* without sugar, *omelette à la vanille* without sugar, *gelèe au rhum* without sugar, *gelèe au café* without sugar.

Miscellaneous.—Butter, cheese of all kinds, eggs cooked in all ways except with flour or sugar, sauces without sugar, milk, or flour.

Almonds, hazel-nuts, walnuts, cocoanuts.

Tea or coffee with a little cream and without sugar. (Glycerine may be used instead of sugar if desired.)

Moderately palatable ice-creams and wine-jellies may be made, sweetened with pure glycerine; but although these may be quite satisfactory for a time they soon become distasteful.

Alcoholic Beverages.—Claret, burgundy, dry sherry, Bass's ale or bitter beer. (No sweet wines.)

PROHIBITED.

Ordinary bread, cake, etc., made with flour, sugar, desserts made with flour or sugar, vegetables, except those mentioned above, sweet fruits.

HOW TO RENDER CHEESE DIGESTIBLE.

The *Scientific American* quotes from a writer signing himself "Sea Cook," who refers, in the *Nautical Magazine* (London), to a lecture by Professor Williams, before the Society of Arts, on the comparative nutriment of different foods, and he follows with a receipt of his own for restoring a chemical quality in cheese of which it is deprived in the ordinary mode of manufacture. It is now known that one reason why cheese is indigestible is because the salts of potass. originally in milk are absent from cheese. The Professor tells us that, taking the composition of a whole skinned and prepared sheep or ox, as it hangs in a butcher shop, the amount of nutriment in it is about equal to one-third of its weight of cheese. The fat is about the same in both, but the difference is due to the bones and excess of water. Thus, 20 pounds of cheese contains as much nutritious material as a sheep of 60 pounds weight, and would have the same value as practical nutriment if it could be as easily digested. * * * Cheese is the most portable of all food, even more so than wheat, on account of the greater value in a given bulk. Common English or American cheese is the best for purposes of food. Make it digestible by restoring the potass., and we have food for our toiling millions on shore, and for those at sea, a food which will go far to not only nourish the consumer, but to make him proof against scurvy as well.

Here is the receipt, and "Sea Cook" advises all master-mariners to copy it into their private logs, and those who are landsmen to have a copy made for use in the kitchen. Cheese prepared as below is not only good and sufficient of itself for a meal, but with potatoes, rice, etc., forms a most useful, digestible and and appetizing adjunct to the *menu* of even a "swell" dinner:

1. Cut the cheese into shreds, or grate it, or chop it up fine, like suet.

2. To every pound of cheese thus treated add a quarter of an ounce of bicarbonate of potass.

3. Put the mixture of cheese and bicarbonate of potass. into a saucepan with either three times its bulk of cold water, or four times its bulk of cold milk, and mix well.

4. Put the saucepan on the fire and bring the mixture slowly to the boiling point, taking care to stir it all the time.

5. Having got it to boil, keep it hot until the cheese is melted, which does not take long.

6. Turn it out into a dish, and the result gives a beautiful nutritious mixture, which thickens like a custard in cooling. This custard may be eaten with impunity, even by those persons who would be ill after eating a piece of cheese the size of a nut, and is peculiarly adapted for food for all persons who work hard with either brain or muscle.

Fancy dishes may be made in the following manner, *e. g.*, take the mixture of cheese and bicarbonate and and water (or milk) given above, and add to it two eggs, white and yolk beaten up together, for every quarter of a pound of cheese in the mixture. Put into a dish or a series of little dishes (previously buttered), and bake till brown. This must be eaten with bread or biscuit. Another way is to make the mixture a little thinner by adding a little more milk or water, and put it in a pie-dish with slices of bread laid one over the other. The custard should be poured in cold and left for an hour to soak before it is baked. This dish is a great improvement on the ordinary bread-and-butter pudding.

THE REARING OF HAND-FED INFANTS.

On August 1st Mr. Edmund Owen delivered a lecture on this subject at the International Health Exhibition, in London. The chair was occupied by Dr. Charles West, who, in introducing the lecturer, made an eloquent address upon the sacred duty of mothers suckling their own infants. He severely criticised the system of wet-nursing, by which one infant was robbed of its birthright for the sake of another, whose wealthy and indifferent mother might be shirking her responsibility from mere indolence.

Mr. Owen remarked that probably almost every one would agree with the truth of the general proposition, that for the first half-year of infant life the mother's milk should be the only food for babes; but where a poor woman has to leave her infant in order to earn money for the support of her husband, or where the lady of fashion finds that the claims of society are so strong as to efface the sweet duties of motherhood, the question had to be answered as to the best artificial food. The physiological chemist brought in his answer: having made an analysis of human milk, he prepared a patent food which, he thought, ought to be even superior to the original article; but his compound was never absolutely fresh, and, when reared on it infants were too apt to grow weak and flabby; most likely it contained some starchy element which found no representative in human milk; he might almost as well put in fine sawdust.

The lecturer said that he was apprehensive lest preserved milk should entirely usurp the place of fresh milk in the nursery. At present it was far too widely employed, and he entirely failed to see how it could form a more wholesome diet for infants—as some maintained it did—than the fresh article. He could no more believe this than that the adult would thrive better on tinned American meat than on fresh sirloin. For babies, cow's milk, which should be always fresh, should be mixed with an equal or *even greater bulk* of warm water, in which a lump of white sugar and a pinch of salt had been dissolved; the fresh milk was an excellent anti-scorbutic, and was therefore always needed. Often, when he had been assured that cow's milk could not be retained by the infant stomach, he had been able to demonstrate to the contrary by mixing even as much as double the quantity of water with it. In summer lime-water might be added to the mixture.

As regarded feeding-bottles, Mr. Owen said that the old-fashioned long straight one, with the short indiarubber nipple, and with no tube at all, was the best; and he wished that, in their search for the antique, mothers would revert to the use of the ancient feeder. With this the infant could be fed only when the nurse had the bottle in her hand, so that the child's meals would be given at regular intervals, and for a definite time, and under close watching. The very worst kind of feeder was that now in general use; he had heard it called, by one well competent to form an opinion on the matter, "the lazy nurse's bottle." It was not so easily kept clean as the slipper-bottle, and was liable to many and serious abuses. Infants should be fed at regular intervals, and if they vomit after their milk, they should be fed on smaller quantities, given at shorter intervals. As a rule, for the first month the bottle should be given every two hours, gradually increasing the interval to three and eventually to four hours. As time went on, less and less water should be added to the milk. Too often infants were fed simply because they cried. True, the infant has "no language but a cry," but the cry may mean that the stomach is already overloaded. Before the end of the first year, infants should be entirely weaned from the bottle; they should then have daily a little undercooked meat pounded into a pulp, to which some gravy and salt have been added. Potato finely mashed and covered with gravy, an egg, or a little milk pudding, may vary the diet. But on no account should they be allowed any wine, beer, tea, or coffee, though they may have cocoa and milk. The meals should be given regularly; children should not be allowed to "pick" at bread-and-butter, cakes, and sweetmeats, in the intervals.

Having criticised unfavorably the absurd fashion of bunching all the little child's clothes around the middle of its body, the lecturer pleaded that here, at any rate, there was great need for a "scheme of re-distribution." The body should be evenly covered. Children could not be hardened by cold baths, or by any other exposure to cold; only the very fit could survive such severe treatment. Like flowers and fruit, they loved warmth and sunlight; and when he had a sick child under observation, he made it one of his first cares to have the cot placed in a sunny part of the room. In England, people did not seem to know the value of sunlight; the Italians did, however, and their common saying was to the effect that "where the sun does not go the doctor does." The sun's rays have a destructive influence on suspicious or baneful gases; but to such vapors children should never be exposed. No bath, sink, or closet should be allowed near the nursery; many children fell victims to a neglect of this first law of domestic sanitation. Everything about them should be sweet and fresh, and there should be no carpets, nor bed, or window-hangings to interfere with the free circulation of the air. On no account should the infant be taken to sleep in its mother's bed; the coroner for Central Middlesex holds a hundred and twenty inquests every year on infants who have thus perished. If the weather be very cold, a warm brick or bottle wrapped in flannel might be tucked in under the clothes of the cot. For ensuring appetite, digestion, and sleep, the infant should be taken out of doors each day when the weather is fine; and every day, unless a bitter wind is blowing, or it is foggy, the windows should be thrown open for a while, as fresh air in the house is an absolute necessity. A well-managed babe should close its eyes as certainly as does a mechanical wax-doll as soon as it is laid down for sleep. The small hours of the night and the unhappy husband need never be disturbed by cradle-songs and lullabys. It was only a home-sick sugar-planter who cried, "Rock me to sleep, mother!" and probably if an infant could speak it would never be heard repeating the request.

In conclusion, the lecturer likened his discourse to a badly-made net, in which the irregularly-sized meshes were represented by the many faults of omission and commission. Still, he did not fear the net breaking under the test of practical experience. Indeed, the greater the strain it was thus called upon to bear, the more productive would be consider this his cast. And he was of opinion that if the great Health Exhibition did nothing more than direct public attention to the unsatisfactory environment of hand-fed infants, history would still be fully justified in regarding it as one of the most important national successes of the nineteenth century.

◆

HOME GYMNASTICS.

In an article on the treatment of constipation, in the *Chicago Medical Journal*, Dr. H. N. Josselyn, after recommending gymnastic exercise as valuable in such cases, remarks that the domestic apparatus adapted for use in one's home is within reach of many, and can be made to accomplish a great good. Still, the Indian clubs and dumb-bells are simpler and less expensive. *With a single dumb-bell*, that may be purchased for a mere trifle in any city, *every muscle in the body may be exercised*, *strengthened*, *and actually made to increase in size*. A few specific directions may be given as to the manner of using it so as to secure the best results.

One dumb-bell or a pair may be used, the weight of which may be determined by the number to be employed in exercise, and by the strength and age of the person for whom they are intended. It is better to begin with a small weight and a single dumb-bell, till the muscles of the body are somewhat habituated to its management. An adult male can advance to the regular use of a dumb-bell weighing thirty pounds; while women generally should begin with one of not more than ten pounds' weight. One should exercise only on an empty stomach, in a well-aired and cool apartment, with a single loose covering for the upper part of the body, such as a woolen under-garment. The iron handle of the dumb-bell should be covered with soft leather, in order to protect the palms.

Standing at ease in an erect posture, with the feet slightly separated, and the dumb-bell lying between them, the body is strongly flexed by the sheer force of the muscles of the trunk and the lower limbs, while the arms depend loosely at the side. When one hand is within reach of the dumb-bell, the latter is grasped, and merely held firmly, while, by the aid of the muscles of the trunk and lower limbs, the body is brought to the erect position again; the hand which holds the dumb-bell being thus carried to the side, its arm is in full extension. Care should be had not to assist this movement by resting the free hand upon any part of the person, such as the knee of its side. Then slowly, and without taking advantage of the momentum which might be acquired by a jerk, the arm supporting the dumb-bell is brought into a state of extreme flexion, till the fore-arm is nearly parallel with the arm, and the hand which grasps the dumb-bell is turned upward. By the same slow process the dumb-bell is elevated above the head to the extent of the full reach of the arm. It is lowered to the ground as slowly as it was raised, each of the movements described above being performed in reverse order, the whole by the sheer force of muscular energy, in opposition to the gravity of the dumb-bell. Special care should be taken, as before, not to find support for the free arm on the knee, thigh, hip, or flank of its side of the body. When the dumb-bell again rests on the floor, a similar series of movements is practiced by the other hand and arm; the body bending, as before, forward and downward, to reach the dumb-bell, upward to the erect position as the weight is carried to the side, forward and downward again as the weight is again brought to the ground. In this way all the muscles of the body are gradually and systematically brought into play in a gentle exercise which does not share the violence required by the more sudden demands made, for example, in leaping, lifting, or the exercises of the trapeze. By raising in this way six thousand pounds to a height of nearly six feet in about one hour, a man of average height, weight, and strength, can, in a temperature of 60° F., induce an agreeable perspiration, and a thrill of activity in every part of his frame, which will, if the exercise be repeated regularly day after day, add greatly to the weight and vigor of every part of his body. It is of course understood that this is merely suggested as a substitute for invigorating out-door exercise, of which so many residents of towns and cities are unable to avail themselves.

BUTTER SUBSTITUTES.

Public interest has been directed very much lately to food-adulteration and especially to the sale of butter-substitutes and adulterated butter, says the *Medical Times*. Chemical analysis has not, as a rule, been very satisfactory in its application to the detection of the frauds. It is stated on good authority that, some years ago, the English government chemists passed as genuine a sample of butter which the vender afterwards acknowledged as fraudulent. Various general tests, such as the crystalline appearance, have been from time to time proposed, but the ingenuity of manufacturers has generally been sufficient to overcome these conditions and thus elude detection. More has been learned by the acknowledgments of manufacturers and dealers than by the investigations of experts, and there can now be no reasonable doubt that a large proportion of the articles sold as butter in the market are composed entirely or partly of other fats. The price paid for the substance and the business reputation are no guide. In one case that recently came to my knowledge, a family in this city were paying fifty-five cents a pound, under the impression that they were getting pure butter direct from a dairy; but on analysis the article was found to be very largely colored lard. It did not seem to contain any butter.

The attempt to prevent fraud by compelling the dealers to place the names oleomargarine, suene, etc., on the tubs or packages, is practically a failure. The name is usually put in some out-of-the-way place or printed in a circle or in fancy characters, so that it cannot be easily read.

It is fortnate that these articles are not injurious. They differ from true butter only in minor particulars, principally in not containing some of the compounds of the more volatile fat-acids. There is no evidence that these substances are essential ingredients, and consequently their absence cannot be a serious matter.

Some little sensation has recently been made by the statement that nitric acid is used in some of the manufacturing operations with these articles, but no reason can exist for any alarm on this point. Even very small amounts of this body would at once be indicated by the taste. It is evident that if this acid is employed in the manufacture, it is entirely removed before the article is exposed for sale.

The entire question is a commercial and not a sanitary one. When butter-substitutes are sold for butter, the consumer is cheated, but his health is not injured. To prohibit absolutely the manufacture of these articles would be to destroy an ingenious industry which is capable of giving to the poorer classes a good article of food. Legislation is only required to insure an honest sale of the substances.

DON'T.

Under this singular title an exchange publishes the following wise cautions:

Don't go to bed with cold feet. Don't sleep in the same under-garments that are worn during the day. Don't sleep in a room that is not well ventilated. Don't sit or sleep in a draught. Don't lie on the left side too much. Don't lie on the back, to keep from snoring. Don't try to get along with seven or eight hours' sleep out of twenty-four. Don't jump out of bed immediately on awaking in the morning. Don't forget to rub yourself well all over with a crash towel or hands before dressing. Don't forget to take a drink of pure water before breakfast. Don't take long walks when the stomach is entirely empty. Don't start to do a day's work without eating a good breakfast. Don't eat anything but well cooked and nutritious foods. Don't eat what you don't want just to save it. Don't eat between meals, nor enough to cause uneasiness at meal time. Don't eat the smallest morsel unless hungry, if well. Don't try to keep up on coffee or alcoholic stimulants, when nature is calling you to sleep. Don't stand over hot air registers. Don't inhale hot air, or fumes of any acids. Don't fill the gash with soot, sugar, or anything else to arrest the hæmorrhage when you cut yourself, but bring the parts together with strips of adhesive plaster. Don't wear thin hose or light-soled shoes in cold or wet weather. Don't strain your eyes by reading on an empty stomach or when ill. Don't ruin your eyes by reading or sewing at dusk, by a dim light, or flickering candle, or when very tired. Don't sing or halloo when your throat is sore or you are hoarse. Don't drink ice-water when you are very warm, and never a glassful at a time, but simply sip it slowly. Don't take some other person's medicine because you are similarly afflicted. Don't bathe in less than two hours after eating. Don't eat in less than two hours after bathing. Don't call so frequently on your sick friend as to make your company and conversation a bore. Don't make a practice of relating scandal, or stories calculated to depress the spirits of the sick. Don't forget to cheer and gently amuse invalids when visiting them. Don't call on your sick friend and advise him to take some other medicine, get another doctor, eat more, eat less, sit up, or talk him to death before you think of leaving.

In walking or other exercises learn to keep the mouth firmly closed, and to breathe entirely through the nose. You can walk as far again with less fatigue and without getting out of breath, than when you breathe through the mouth. Try it.

The best three medicines in the world are warmth, abstinence, and repose.

THE PROPHYLAXIS OF TUBERCULOSIS.

The contagious nature of pulmonary tuberculosis has been so strongly taught in Germany, that consumptive soldiers are isolated from their fellows as rigidly as though they were the victims of small-pox. In this connection we must remember that the question of the etiology and contagiousness of tuberculosis is by no means settled, that it is still *sub judice*. Hence it is that we should be careful about accepting the doctrine of contagion, for, as M. Vallin recently told the Hospitals Medical Society of Paris the public is very selfish and quick to take alarm, and if once people became convinced that there was a real danger of contagion in this disease, they might run to the extreme, and shun the consumptive as they would a leper. A patient with phthisis should always sleep alone, in a well-ventilated room. Especial care should be taken in the case of patients with the buccal, pharyngeal, or laryngeal forms of tuberculosis, and it would be well for these to inhale iodoform vapor, in order to render their breath as innocuous as possible. Children convalescing from measles and bronchitis of the smaller tubes should be kept away from association with consumptives. Patients should be forbidden to expectorate in their handkerchiefs or on the ground, but should use spittoons containing some damp sand or sawdust. The spittoons should be washed in boiling water or in a solution of chloride of zinc, one ounce to twenty ounces of glycerine and water. The rooms in which phthisical patients have died should be disinfected by burning sulphur, one ounce to every cubic yard. Finally M. Vallin summed up the conclusions of the committee briefly, as follows: 1. The transmissibility of pulmonary tuberculosis is very probable, though not as yet indubitably proven by facts. 2. Isolation of consumptives, in the same sense as that of patients suffering from diphtheria or small-pox, is neither necessary nor desirable. Yet in view of the probable contagiousness of the disease, the public should be urged to adopt certain prophylactic measures similar to those enunciated above.

HISTORIC DROUGHTS.

An Italian *savant* passes in review the hot years of history, beginning with 627 A. D., in which the water-supply of France, Germany, and Italy was completely dried up. In the year 897 the heat was so great on the Continent that vast numbers of peasants were struck down with *coup de soleil* in the fields; in the year 993 vegetation was burnt up by the sun as if by fire; in A. D. 1000 the wells and water-courses were all dried up, and the masses of fish heaped up on the banks of rivers and lakes produced a pestilence by their putrefaction. In 1132 the earth was so scorched with the intense solar heat that great fissures were made in it for miles, and seven years afterwards the same phenomenon was witnessed, especially in Italy. The years 1260, 1277, 1303, and 1304 were all signalized by protracted drought, insomuch that the largest rivers in Europe, the Rhine, the Seine, the Po, the Tiber, shrunk to the tiniest streamlets. In 1615 and 1625 a similarly excessive heat prevailed all over Europe, and in 1705 the temperature rose so high as sometimes to resemble that of a glass manufactory. Butcher's meat was cooked by the sun, and from mid-day till 4 p. m. no one ventured out of doors. For six months in 1718 not a drop of rainwater fell, and in 1753 the thermometer averaged between 38° and 40° C. Bologna was visited by excessive heat in 1779, so that many died of asphyxia, and to escape a similar fate the inhabitants took refuge in pits and caves underground. The month of July, 1793, was also one of intolerable heat. All the vegetation and the harvests withered up. The furniture in houses cracked and split, and meat became putrid almost under the butcher's hands. Hurricanes and earthquakes accompanied the intense droughts of 1811 and 1822. In some countries the earth delivered itself, under the continued heat, of hosts of field mice, which ravaged the most fertile plains. Of these mice no fewer than 2,000,000 were destroyed in fifteen days in one country alone. In 1832 the fearfully hot weather in Paris was coincident with the cholera epidemic in which 20,000 persons died.

DISEASES PRODUCED BY DRINKING WATER FLOWING FROM A GRAVEYARD.

We all know that impure water is a most powerful agent in the production of disease, but it is not often that we read of such a pronounced and definite case as the following, which Dr. L. G. Hardman reports in the *Atlanta Med. and Surg. Journal:*

H., age 13, female of previous good health, while at work in a field on Oct. 1, 1883, just before taking her dinner, drank water from a branch which had its origin from the side of a hill that had long been used as a burying-ground.

The place at which she drank the water was about one hundred and fifty yards from the source of the branch. About an hour after she had taken the water she complained of being sick, suffered pain in head, and very soon began to vomit, and continued until midnight, when a diarrhœa set up, from which she suffered greatly, complaining of aching all over, which continued for three days, when he was sent for to see her.

He found her with pulse 112, temperature 103° F., suffering intense pain in left hip and leg, tenderness on pressure over the sciatic nerve on the same side; some swelling of the hip.

He gave patient hypodermic injection of morphine, which gave some relief. The morphine had to be continued at intervals to produce rest.

On the third day after he saw her, her mother called his attention to a swelling of the labia majora of the left side. This very soon resulted in a large abscess which discharged profusely. A few days after this she complained of pain in the knee, wrist and clavicular articulations. These showed very little sign of inflammation at first, but in a few days suppurated. The parotid glands also suppurated. Patient died on the eighteenth day. The temperature and pulse varied very little from what they were when he first saw her. She was given quinine and iodine, and was kept on as nutritious a diet as could be had, consisting of beef, eggs, etc.

There was a sister who drank water at the same time and place who was sick in the same manner, who had a similar abscess on the scalp to the ones related. This patient recovered.

A year previous to this time an older sister, after drinking at this same place, was taken sick in a few hours, and had a long and severe spell of typhoid fever; she had no abscesses, as did the others.

The owner of the land through which this branch flows, informed him that whenever he has permitted his stock to pasture in this field they lose their appetite, fail to eat, and very soon get poor. He, knowing the bad effects of this water on his stock, had cautioned his children against drinking it.

Did the drinking of this water produce these diseases? If so, why should two of the cases seemingly have pyæmia and the other typhoid fever?

TOBACCO AND ITS ADULTERATIONS.

Many investigations have from time to time been carried out as to the nature of the compounds which give rise to the peculiar properties of tobacco, and as to the best means for the cultivation and improvement of the plant. In a recent paper, read before the Glasgow (Scotland) Branch of the Society of Chemical Industry, Dr. Clark brought forward some facts as to the composition of the tobacco in ordinary use among the general public, which cannot but be of interest to the many lovers of the fragrant weed, and should engage the attention of those connected with the trade. After pointing out the national importance (to England) of the tobacco-trade, as shown by the revenue-returns for last year, when no fewer than 50.557,215 lbs. were imported, Dr. Clark gave his analysis of different samples of tobacco purchased from manufacturers in Glasgow. In five of these, sold at seven cents per ounce, there was an average of 28.79 per cent. of water; while in five others, sold at six cents per ounce, it amounted to 41.66 per cent. of water. The lowest quality of cut tobacco, which is largely manufactured and sold in England, gave very similar results; and some of the cheapest kinds showed as much as 50 per cent. of water. The conclusion come to by Dr. Clark is, that this large amount of watery ingredient, introduced by the manufacturers of the different varieties of tobacco, is the result of the keen competition which exists in the trade and the low price of the article; and he thinks it very desirable that there should be some limit placed on the amount of water which may be sold as tobacco. The result of inquiries into the composition of cigars, even the cheapest varieties, showed they were comparatively dry, containing only, as a rule, from ten to twelve per cent. of water; but with regard to snuff, the analysis made by Dr. Clark reveals a state of matters anything but satisfactory. The chief adulteration seemed to be sand, and the average quantity being about five per cent., while in many samples the quantity exceeded ten per cent., and, in one case, he found as much as 30.94 per cent. in dry snuff. Seeing that many of these sand-particles are very sharp, it is easy to understand, as he points out, that they may be the exciting cause of inflammatory conditions of the mucous membrane of the nose. Basing his calculation on the quantity of tobacco on which duty was paid, Dr. Clark gives the average of the consumption, for the United Kingdom of Great Britain and Ireland, as 1 lb. 6¾ oz. per head during last year; but, as the tobacco was diluted to a considerable extent with water in the process of manufacture, the actual amount of the article manufactured would be increased by about 25 per cent., which would increase the consumption to an average of nearly 1 lb. 12¼ oz. per head of the population.

THE RANCH CURE FOR CONSUMPTIVES.

Dr. Samuel A. Fiske has an article in the July number of the *Popular Science Monthly*, on "Colorado for Invalids," from which we give the following extract; if the facts are strictly as stated, the free dissemination of this statement of them throughout the Eastern States will do good:

"It may be a good thing for the person affected with phthisis to go into ranching, after he has been in the State long enough to know what he is about in doing so; but we enter a protest against the idea, which is somewhat prevalent in the East, that in order to recover his health the invalid should go on to a ranch and herd sheep. The reasons for making this protest are that such advice is frequently given; and, as we are led to judge by physicians who have but the vaguest ideas of the nature of the course they are prescribing. The invalid, on coming to Colorado, needs to have life made as easy and pleasant for him as possible. As a rule, the sacrifices he has to make, in consequence of his sickness, render him for the time being peculiarly dependent upon sympathy. He should be so situated that he can have the benefit of pleasant society and diverting companionship. Now, ranch life is necessarily somewhat rough and usually monotonous, and when it comes to herding sheep, even a vigorous man, new at the business, finds it most irksome and fatiguing. We think it a great mistake to increase the trials of an invalid by imposing upon him, in addition to a separation from his friends, and almost entire absence of companionship, a life that is rough in the extreme, and a dietary that is unnutritious, uninviting and monotonous. The average ranch-house is a miserable shanty, out on the plains, away from neighbors, where the usual diet is bacon floating in grease, hot flapjack made fresh with water and baking-powder, molasses, and coffee without milk.

If it be possible for the invalid to go to some nice ranch, near a village, where he can have good, wholesome diet, pleasant associates, out-of-door occupation, and where his hours will necessarily be regular, then the conditions for recovery are excellent. Such ranches are to be found. But the average ranch on the plains is much inferior to the average farm-house in the East, and the surroundings and diet are such as at first to try very severely the strongest man."

THE WATER SUPPLY OF PARIS.

The able work of M. Wazon on the sanitary arrangements of Paris, which has recently been issued from the press, will be read with more than ordinary interest in view of passing events. M. Wazon shows that "the total available daily supply of water is about 100 million gallons, which, for a population of between $2\frac{1}{4}$ and $2\frac{1}{2}$ millions, he considers to be quite inadequate. Between 1876 and 1881, the number of inhabitants rose from 1,988,000 to 2,240,000, at which rate of increase it will be probably $2\frac{1}{2}$ millions in 1886. The supply of water would then be about 40 gallons a head a day. This is a higher proportion than Londoners obtain, but is far inferior to the supply of Marseilles, which enjoys 180 gallons a head a day. Although the cesspool system still exists in the city, the Commissioners proposed in 1881 a temporary improvement in the use of metallic cesspools, containing from 60 cubic feet to 200 cubic feet, to be emptied by the pressure of the air; but the cost of emptying these weekly would be enormous, irrespective of the expense of providing and fixing a cesspool receptacle. The amount of household and street refuse per day in Paris is 2,000 cubic mètres, or 54,000 cubic feet, which is removed by 600 carts. The rate for this expenditure varies from 2 to 14 cents per lineal yard of building frontage, and in 1880 produced $520,000, the whole cost of cleansing being $1,060,000. All houses in Paris are obliged to deliver the rain-water and household waste into the sewers, the municipality providing that every street less than 60 feet wide must have one sewer, and that streets over that width must have one sewer on each side of the way." Satisfactory, however, as are the figures, the facts are widely different. The daily supply of water to each person reads well; it works otherwise. The water is not available in this proportion, or anything like it, for daily use or for personal use. It runs away in fountains, and in watering the asphalte; but for the internal use of houses the water-supply is scanty, the fittings are bad, and the water-closets ill-flushed.

TINNITUS AURIUM DUE TO THE EXCESSIVE USE OF TOBACCO.

While it is quite generally known that the excessive use of tobacco will, in certain individuals, produce an unpleasant ringing in the ears, yet it will prove of interest and instructive to read the personal experience of Dr. Atwood, which he related to the St. Louis Medical Society at a recent meeting:

"For 10 or 12 years I have had this condition almost incessantly; during this evening it has been unusually severe. It does not interfere with my hearing, which is acute. I have no other trouble about the ear. I do not know that I suffer from any physical infirmity. I have discovered the cause of the trouble, and can control it. Whether I shall have incessant ringing in my ears, and especially in the left, or not, depends upon myself. I am an inveterate user of tobacco, and have found that the tinnitus is dependent upon my persistency in the use of the weed in both forms, smoking and chewing, smoking, perhaps, producing the greater effect. In my case it is a local trouble. I prefer to bear with the noises rather than forego the consolation derived from the weed. Upon ceasing from the use of tobacco the noises in my ear cease, but if I again use it, they immediately recur."

While no doubt many persons will follow Dr. Atwood's example, and submit to the unpleasant ringing in the ears rather than forego the use of the weed, yet we cannot help but think that it would be the part of wisdom to moderate the consumption of tobacco; for it is a well-known law that functional disorders too oft repeated have a tendency to become organic; hence what at first is but an annoying and controllable ringing in the ears may, in time, result in some serious and incurable defect of the organ of hearing.

THE MORTALITY OF MARRIED LIFE.

The *Journal of the American Medical Association* cites some rather remarkable statements from an address delivered by Dr. William Pratt, of London, as follows:

"According to statistics the married life is not only the purer, producing the minimum of evil-doers and criminals, but it is also by far the most healthy. Take the male sex, and it is seen that from twenty-five to thirty years of age one thousand married men furnish six deaths; one thousand bachelors furnish ten deaths; one thousand widowers furnish twenty-two deaths. The figures, however, become very unfavorable if the marriage be contracted before twenty. Out of eight thousand young men married before twenty their mortality has been found to be, before marriage, only seven per one thousand; after marriage, fifty per one thousand. With respect to the female sex we find a similar advantage of marriage over celibacy, but on the same condition. If young girls be turned into wives before twenty, a like mortality befalls them which befalls the other sex. Everywhere young married people from eighteen to twenty years of age die as fast as old people from sixty to seventy years of age. The common sense and common law of Western Europe have with perfect justice marked twenty-one as the age of maturity. After that epoch, however, marriage should be contracted as soon as practicable. It is the healthiest and the happiest life; the best for the individual and for the community."

THE DRY METHOD OF SEWAGE DISPOSAL IN CANTON (CHINA).

As of interest, in connection with our article on the disposition of sewage in our July issue, we note that in Canton a population of one million and a half is densely packed together in narrow streets, with very few open spaces. Miss Isabella Bird, speaking in her book, *The Golden Chersonese*, of the sanitary arrangements of the city, says that every street is paved with large slabs of granite, and that beneath this pavement is a drain for carrying off the rain-water. These drains open into six intercepting culverts, which empty into four branches of the river on which the city stands. The local authority of each street is bound by law to cleanse the drain of the street, and it is the duty of the prefect to cleanse the intercepting culverts every autumn; neither of these authorities, however, discharge their duties in a satisfactory way, yet Canton, in spite of its dirty drains and overcrowded areas, is, on the whole, a very healthy city; and serious epidemics, it is said, very rarely occur. This result may be attributed, according to Miss Bird, "to the excellent plan of sending out the garbage of the city daily to fertilize the gardens and fields of the neighborhood." The testimony in favor of the dry method of disposing of sewage, coming, as it does, from an independent observer, who observed it in a town where, in a climate warm in summer, almost every other sanitary principle is violated, appears to be worthy of record.

THE CAUSE OF DEATH AMONG CHILDREN—BURIAL CLUBS.

Spennymoor is the name of a small village in England wherein the proportion of children who die in their first year is something marvellous, out of all proportion to the death-rate of any other place in England or Wales.

Amongst the causes of this high death-rate in children, the following are given, viz.: the feeding of infants on artificial food from their birth; the gossiping and drunken habits of the mothers, who spend a large portion of their time in each other's houses or in the public-houses, the children being meanwhile left to the tender mercies of perhaps a girl of eleven or twelve, or else left to play about on the doorstep by themselves. Many of the women too are in the habit of taking opium, which cannot but be injurious to the infants at the breast. The last cause suggested is the most serious of all; it is that the burial club system is responsible for many of the deaths. The only way to meet this, is that in the event of the death of a child insured in one of these clubs, the doctor's bill and the funeral expenses should be paid by the club, but the parents should not be allowed to receive any money directly in respect of such death.

From this last clause we must infer that these inhuman mothers will actually allow their children to die (to put it mildly) in order that they may realize a little money—to spend, no doubt, for rum. Surely this burial club system is not an unalloyed boon to the poor.

FUSEL OIL IN CANDY.

Dr. E. H. Bartley, chemist to the Brooklyn Board of Health, has made a report to that body in regard to the "rock-and-rye drops," which, although flavored with fusel oil, are constantly sold at the "candy shops" in large quantities to school children, and in it he says: "In some of these candies the oil is not thoroughly mixed or diffused, and occasionally a good-sized cavity is filled with fusel oil. Estimating that a child may buy and eat half a pound of this candy, containing 5.7 grains of the oil, it will be seen that it will take the maximum dose for an adult, and will probably experience distinct symptoms, such as dizziness, headache, or even slight intoxication. A fatal dose of fusel oil is stated by the best authorities to be from 1.4 to 1.6 grammes, or the quantity found in two pounds of this candy."

Some persons will say, "What can we eat? You sanitarians condemn everything!" Not so; just look at the matter reasonably. We would rather say, "You can eat almost everything," but we do cry out against the common practice of using harmful adulterants, and we are sure that every right-minded man and woman will agree with us.

UNCOVERING AT FUNERALS.

The *British Medical Journal* warns us that this practice is often highly prejudicial to the health of mourners, who may have many living persons dependent upon them, and who are exposed by the custom to actual risk of life, or at least to a very great chance of being seized with temporary indispositions, which are certain to cause them unfair and needless inconvenience. The depression of spirits under which the chief mourners labor at these melancholy occasions, peculiarly predisposes them to some of the worst direct and indirect effects of chill; and even when any person is present at a burial out of respect to the deceased, with whom he has had none of the deep sympathy due to relationship or intimacy, the risk of his catching cold is considerable, as a visitor of this kind has often walked some distance, or traveled in a hot carriage by rail or road. A duty of this kind is often pressed upon a medical man; and in his case the risk is great, and the result of any consequent illness often very serious. It is, however, very difficult to break old customs without giving offence; and perhaps the best thing to do, under the circumstances, is for the mourner to wear a skull-cap, or to raise his hat as little from his head as possible, as both these subterfuges appear to be conventionally permissible.

WATER FOR INFANTS.

Some two years ago, Dr. N. S. Davis, of Chicago, called attention to the condition of the blood of infants in summer, which we might term *ex-aqueous*, due to the excessive amount of liquid lost by perspiration, and which he deemed predisposed the system to the summer diseases of children; and now Dr. Charles Remsen (*N. Y. Med. Jour.*) calls attention to this point, which has received altogether too little attention. We all know how seldom an infant is given any more water than that contained in its food, and yet we all see how eagerly they will often drink when it is offered to them. A slightly depressed condition of the anterior portion of the skull is one of the earliest symptoms, showing the amount of water in the system to be below the standard. Fretfulness, moderate rise of pulse and temperature, a hot dry skin, and frequent desire to nurse, are other signs. If not relieved, collapse is apt to set in.

The treatment adopted for these emergencies consists in wrapping the patient in a wet sheet, applying cold to the head, and giving as much water by the mouth as the child will swallow.

The results of this simple method have been extremely satisfactory, the child becoming quiet, and even going to sleep, while all the threatening symptoms subsided with great rapidity.

LATE MARRIAGES.

Dr. F. Steinmann, of St. Petersburg, has recently published the result of his researches into the question of how far child-birth and lying-in are unfavorably affected by the woman being old when she first becomes a mother. The estimate of the time when a woman first with child is called old varies between twenty-five (Fasbender) and thirty-five years (Mangiagalli), but Dr. Steinmann accepts that which most authorities have adopted—viz., thirty years. From twelve years' statistics of the St. Petersburg Maternity Hospital, during which time there were 28,279 deliveries, it appears that there were in that period 645 who might be called old. Of this number, a fraction over 69 per cent. were thirty to thirty-four, 26.2 per cent. thirty-five to thirty-nine, and 4.2 per cent. forty years and over; one of these was fifty-two years old. In 1875, when the general mortality was 3½ per cent., that of the old ones was nearly 14 per cent.; and again in 1881, when the general mortality was only ½ per cent., that of the old ones was 8 per cent. A decidedly greater mortality of the children among the old is also shown by the statistics collected by Dr. Steinmann; and, although the subject demands more attentiom than it has heretofore received, the facts adduced by him furnish strong reasons for objecting to late marriages.

POISONOUS COD-FISH.

M. Bertherand, of the Climatological Society of Algiers, has demonstrated, on himself and on others, the poisonous action of dried cod when it presents a vermilion tint. M. Mégnin has discovered in this vermilion-tinted cod a parasite which he considers to be a variety of the genus *consothecium*. M. Duvillier has found a considerable quantity of the poisonous products of decomposition. The poisonous action of this dried cod is the result of the combination of these two. The symptoms are pain, vomiting, diarrhœa, griping, general collapse, intense thirst, cramps, coldness of the hands and feet, and a burning sensation in the throat. M. Bertherand attributes the deterioration of the fish to the excessive heat of the Algerian coast. He proposes that sodium borate or boric acid should be used instead of sodium-chloride; also that the cod should be dried by placing it in a strong current of air. Immediately it is caught, it should either be frozen according to the American method, or tanks should be provided in the boat, where the fish can be kept alive. Since we may have similar conditions developing in our own country during the hot days of summer, it is well that we should be on the lookout for *vermillion-tinted cod-fish.*

DISINFECTION OF BAGGAGE BY NITROUS VAPORS.

During the epidemic of cholera at Marseilles and Toulon, it was customary at some of the railway stations in Paris to disinfect the baggage arriving from the stricken cities by means of nitrous vapors. M. Gréhant, before the Biological Society of Paris, said that this was a dangerous practice. The porters who removed the disinfected baggage incurred no slight risk. Experiments upon dogs had shown that the respiration of nitrous vapors was always dangerous, and might even be fatal in its consequences. It was very well to try to kill the microbes, but it was hardly the correct thing to kill men at the same time.

M. Rabuteau thought that the question raised by M. Gréhant was one of very grave importance. The inhalation of nitrous vapor determines profound changes in the blood, the effects of which may not be seen immediately. Workmen exposed to these fumes had been known to die suddenly after they had returned to their homes, although while at work they had experienced no ill effects.

M. Henninger cited the case of a chemist in Edinburgh, who died in consequence of inhaling these vapors. His laboratory assistant was also made very ill, but finally recovered.

THE PUBLIC INTEREST IN HYGIENE.

Hardly a day passes that we are not forcibly told that the interest in hygiene is on the increase. As evidencing this interest, we make the following quotation from the novelist Cable's book, Dr. Sevier:

The doctor is asked to subscribe towards an asylum overcrowded with orphans in consequence of a late epidemic of yellow fever, and while putting down his name for a large amount, delivers himself thus: "In old times we used to go into monasteries; now we subscribe to orphan asylums. Nine months ago I warned this community that if it did not take the necessary precautions against the foul contagion that has since swept over us, it would pay for its wicked folly in the lives of thousands, and the increase of fatherless and helpless children——We deserved it!"

Then he reads the heading of the subscription list: "'God in his mysterious providence'—oh, sir!—what a foul, false charge! There's nothing mysterious about it! We've trampled the book of Nature's laws in the mire of our streets, and dragged her penalties down upon our heads! A community has got to know these laws and keep them or take the consequences—and take them here and now, on this globe—*presently.*"

PAINS IN THE HEAD DURING THE GROWING PERIOD.

It is not uncommon to find children who are compelled to interrupt their attendance at school on account of persistent headache. It commonly occurs between the ages of twelve and eighteen years, is accompanied by dizziness and languor, and is excited by any intellectual effort, sometimes even by the reading of an entertaining book. Its location is mainly in the temples, though it may spread over the entire head. The sufferer is at times irritable, easily excited, or inclined to sadness and spells of weeping. Oftentimes a visit to an oculist will reveal some defect of the eyes, and properly adjusted glasses will yield immediate relief. In addition to this, the child should be absolutely relieved from all intellectual effort, and should be placed in good hygienic surroundings.

The Annals of Hygiene.

VOL. I. PHILADELPHIA, OCTOBER 15, 1884. NO. 4.

POSTURES IN SCHOOL: THEIR INFLUENCE UPON PHYSICAL DEVELOPMENT.

It is an important fact, says Mr. Noble Smith, of England, that a large number of individuals become deformed during their growth; and posture has so much to do with this, that even strong children may grow up crookedly if kept for long periods of time in bad positions. It is a well known fact that girls are more often affected with crooked spines than boys, the proportion of the former to the latter being six or seven to one. In considering the reason for this preponderance of the deformity among girls, it is necessary to study the differences in the lives of the young of the two sexes. From their infancy upwards girls are discouraged from playing and romping. The games they *are* allowed to play do not require so much freedom of action as do those of boys. As girls grow up more attention is given to their deportment, greater attempts are made to induce them to "sit up," whether at lessons or at meals. In short, all the factors in the formation of curvatures of the spine occur to a much greater extent with girls than they do with boys.

It is a false system to attempt to refine young girls by restraining their natural freedom of movement. It is this false process which does so much to encourage the production of deformity. Long walks in precise and stately file produce a harmful strain upon the spine and legs, whereas free movement in such games as cricket and lawn tennis affords most healthful exercise. After a long, uninteresting, formal walk, the girl returns to work; the muscles of the back are then fatigued from prolonged use in one direction, and when she sits she soon allows her back to fall into a curved position. Marching in file is very necessary work for soldiers, it may be suitable work for convicts, but it is not a proper routine exercise for girls. Overwork, by causing general fatigue, impairs the pupil's health, so that her muscles and other tissues become less able than in health to sustain the body weight. Girls seem to be very easily induced to do a large amount of sedentary work, and they readily fall into the habit of neglecting physical exercise. It is therefore most important that their studies should be carefully arranged, so that a due amount of active recreation is ensured. Girls are said to be more restless as regards their postures than boys; but is it not that the natural restlessness of young people is more noticed in the case of girls, and more often checked?

If any one posture is maintained repeatedly for long periods of time without the body being perfectly at rest, the normal development of the skeleton will be interfered with. The periods which may be called long vary in accordance with the particular posture adopted. That which is a long period for one position is a short time for another. Then again, the periods which may be termed long, depend upon the health and natural strength of the child. A feeling of fatigue is a certain indication that a change of posture is required. *Standing upright* for too long fatigues and exhausts the muscles, and they are thus weakened. The result is a gradually lessened ability to prevent the body falling into bad postures at other times. Standing with both feet close together is a very fatiguing attitude. *Standing upon one leg* places the base of the back in an oblique position, and thus causes lateral curvature of the spine. *Standing and supporting the body with the hands* upon a chair or with the back against a wall, is better than not having any extraneous support at all, but it is likely to produce roundness of the back. *Standing with the arms crossed* also makes the back round. *Standing* may produce flat feet and also knock-knees. In the latter case the weight falls chiefly on the outer side of the joints, and they gradually give way towards the central line of the body. *Sitting with the arms resting upon too low a table* produces a round back, and if the right hand is used for writing, drawing, etc., the shoulder of the right side is raised more than that of the left, and the spine is placed in a laterally curved position. *Sitting with the arms evenly supported on a desk*, or with the elbows upon a sufficiently high desk, and the head resting upon the hands, are fairly good postures. *Sitting in a chair with a suitable back-rest* is a very good position, but it is quite possible for the back to be made "round" while in this posture by the pupil bending forwards frequently, and thus contracting the chest. *Sitting with the knees close side by side* is a very fatiguing attitude, but it is not considered elegant for a young lady to sit otherwise, unless she crosses the knees; and crossing the knees is also a bad position, and necessitates the spine being placed crookedly. *Recumbency in bed* even may involve the assumption of bad postures. The body may be bent, the knees and head approximated, causing a rounded back. The pillow may be too high, so that the spine is curved laterally in sleeping on the side, or posteriorly in sleeping on the back.

The above remarks may be easily applied to other positions than those described, but it is perhaps desirable to refer to playing upon the piano. This is necessarily a very fatiguing posture, even when the pupil uses a well-constructed seat which supports the back; and therefore the time devoted to this practice should, for weak children, be of but short duration. A round back involves the production of a flattened chest, and a constricted space for the lungs, heart and stomach. We are indebted to the late Dr. Hutchinson for most exhaustive researches upon the movements of the chest, and the relation between the breathing powers and the health. Among a host of valuable facts which he published was that which showed a certain standard of what he called VITAL CAPACITY, for every individual of a similar height, weight, age, and sex. The VITAL CAPACITY of an individual is indicated by the volume of air which he is able to expel forcibly from his lungs after a full inspiration. At the middle period of life the vital capacity *necessary for health* of a man measuring 5 feet high, is 174 cubic inches, while for a man 5 feet 10 inches, it is 254 cubic inches. These measurements never vary in perfect health, and, therefore, when the amount of respiratory power as thus indicated is diminished, it proves the existence of either distinct disease, or, to say the least, it shows a lessened vitality. Dr. Hutchinson also proved, and in fact it is a matter of general observation among medical men, that in people with round backs, the vital capacity is very much lessened; and it seems probable that individuals thus afflicted are more liable to become consumptive than others, and have less power to resist an attack of ordinary lung disease.

Standing upon one leg is likely to cause curvature of the spine by placing the pelvis in an oblique position, but even standing with both legs upright may have a similar effect in many individuals in whom one of the legs is shorter than the other. It seems that such a condition exists much more often than was formerly believed. The researches of Drs. Hunt, Cox, Wright, and Roberts in America, and of Dr. Garson in London, show that equality in length of the lower limbs is an exceptional condition. In fifty-four persons examined by Dr. Cox, only six possessed limbs of equal length—the variations ranging from $\frac{1}{8}$th to $\frac{7}{8}$ths of an inch. Dr. Garson carefully measured seventy skeletons at the Royal College of Surgeons, and in only 10 per cent. of these cases were the limbs equal in length. The left limb was found longer than the right in thirty-eight cases (54.3 per cent.). The right was the longest in twenty-five cases (35.8 per cent.). The amount of inequality varied from $\frac{1}{25}$th to half an inch.

It will be utterly useless to attempt to remedy or prevent the evils simply by laying down rules regarding postures. Rules may be devised, and they may have their value; but so long as parents and guardians entertain the idea that energetic action in play, and the adoption of easy postures at work, are unladylike and unbecoming in a girl, so long will weak and deformed backs, legs and feet, and the want of good health, which are thereby engendered, remain as common as they are in the present day. Ladies who have the management of schools and collegiate establishments, seem generally to be inclined to entertain more liberal views upon these matters now than formerly, but their endeavors to improve the physical condition of their pupils are often disapproved of by the parents. At a large establishment in England, where the advantages of free exercise are fully appreciated by the lady who has the immediate direction of the pupils, stately walks have been almost entirely abolished, and out-door games substituted. Of all these games, cricket is approved of by the girls above the others, and the enthusiasm with regard to this excellent game is very great. However, in some cases, the parents have raised objections to cricket, as being too unladylike for their daughters, and stool-ball has been recommended as a substitute. But such a game is far less beneficial than cricket; in fact, it is the very freedom and variety of movement, the energy displayed at one moment, the temporary easy repose at another, and also the interest which it excites among the players, which constitutes alike its excellency as an exercise from a hygienic point of view, and its unladylike nature from the point of view of the fashionable mother. Tennis, and fives, and many other games, may have their place among the recreations of girls. Swimming has a great influence in developing the muscles of the spine, and in straightening a round back, providing, of course, that there is no lateral curvature. Drill and gymnastics have their advantages, but they should be carried out in moderation, and be more carefully supervised than ordinary games. They are very useful in bad weather, when out-door games are less practicable. The Swedish systems of drill and gymnastics have become rather popular of late, and are valuable as means of exercise, but should not take the place of games.

With regard to postures in school. It is very desirable that children should be allowed much freedom of choice regarding their change of position. Standing in class should be avoided as much as possible; in some schools it is entirely abandoned. If the pupils are to stand at all, they should not be obliged to place their feet close together, because by so doing the basis of support is made too small, and a greater effort has to be made to maintain the equilibrium of the body than if the feet are slightly separated. Standing upon one leg may be permitted, but each leg should be used alternately to support the body. The seat should be sufficiently high to allow room for the legs to move freely or rest naturally on a foot-board. The back should be upright, with a projection to fit the back of the pupil above the hips. It is best that the back of the seat should rest the shoulders whilst the pupil is sitting up reading. The seat should support nearly the whole thigh. The edge of the desk should reach to within an inch of the body of the pupil when he is sitting upright. It should be sufficiently high to allow the pupil to write without or with a minimum of stooping, the eyes being about 14 inches from the work. The desks should slope 20° for writing and 40° for reading. The light should come from the left hand of the pupil, so that it falls upon his work while he remains in a good posture. Writing as usually taught is the occupation at which probably the body is most frequently placed in bad positions, but if upright writing were substituted for the present plan of sloped writing, the body might very easily be kept also in an upright posture. This plan of upright writing is most valuable, and its adoption in schools would do much to prevent the formation of curved spines.

Much may be done to change the form, even in adult life; but if the body is deformed in childhood by injudicious postures, and the health ruined by overwork, then are produced effects which no amount of care in after life can quite remove.

PARASITES OF MEAT AND PREPARED FLESH-FOOD.

In his second lecture at the International Health Exhibition, Dr. Cobbold treated of the cestoid parasites and their larvæ—that is to say, of the tapeworms and bladder-worms, such as hydatids, measles, etc. Meat sent to the markets was liable to contain these entozoa; neither beef, veal, pork, nor even mutton and venison, being altogether free. On several separate occasions he had noticed cysticerci in joints of mutton brought to his own table, and he had described similar parasites from the flesh of a giraffe, as well as from commoner animals. As an argument in favor of hippophagy, it should be stated that horse-flesh was singularly free from parasites of this class, although other tissues, as well as the viscera of equine animals generally, were apt to contain bladder-worms. None of these equine parasites, however, was injurious to man. Having explained the general structure and development of the beef tapeworm, the lecturer dwelt at some length upon the dangers arising from dispersion of ova by the employment of fresh sewage, and upon the inestimable value of experimental research in determining the mode of origin of the different species of tæniæ that attack man and beast. He referred to the labors of Leuckart, Mosler, and various other Continental helminthologists; but he stated that in this particular matter he had conducted more experiments than any one of his foreign co-workers. Reverting to the prevalence of measly beef, it was shown that out of 13,818 beasts slaughtered in the Punjab in the year 1869, as many as 768 animals were infested with cysticerci. This would be at the rate of about 5½ per cent. (5.55). The percentage of the previous year was higher. Passing to the ravages of the pork tapeworm, its comparatively dangerous character was noticed, not a few instances having come under Dr. Cobbold's observation where the cysticerci were lodged in the human brain. Allusion was made to the Mosaic inhibition of swine's flesh, and to the extraordinary prevalence of measly meat throughout the East. In reference to the little tapeworm which proved to be the sexually mature state of the ordinary hydatids, he referred to the experimental labors of Van Siebold, Naunyn, Nettleship, and others. Reverting to hydatids, a singular experience was related in connection with a plate of meat that had been brought to him at a public restaurant. The relative prevalence of the echinococcus veterinorum in England, India, Australia, and Ireland, was next referred to, special stress being laid upon the investigations of Dr. J. D. Thomas, of Adelaide.

As regards India, it was stated on the authority of Dr. James Cleghorn, that of 2109 beasts slaughtered at Mooltan, 899 were diseased, and in most cases both the lungs and liver were affected. This was equivalent to 42 per cent. If asked how this was to be accounted for, the reply was that the cattle in India had ready access to tanks containing foul water, and they had frequently been seen to swallow refuse and garbage, in which tapeworm eggs abounded. The ova of the tænia echinococcus, expelled by dogs, must be very thickly dispersed throughout the low grounds of India. As regards preventive measures, Dr. Cobbold insisted upon a more thorough meat-market inspection by competent persons—that is to say, by inspectors who had familiarized themselves with the phenomena of parasitic disease. It was useless to say that officials in general were already well informed on this subject, inasmuch as he had been supplied with abundant proofs to the contrary. During the last thirty years he had received several hundred private communications on the subject of parasites, many of the applicants for information being officers of health. In one instance, the cut ends of the intercostal nerves had been mistaken for parasites, and thus meat had been condemned without good cause. In connection with the temperature necessary to destroy the measles of beef and pork, Dr. Cobbold again emphasized the labors of Professor Perroncito, showing that none of these creatures could survive a heat of 50° C. or 122° F. prolonged for a single minute. At this point of the lecture Mr. Birkbeck, M. P., handed to the chairman a paper requesting information respecting the so-called "mackerel scare," in reply to which it was affirmed that the entozoa of this fish were perfectly innocuous to mankind, whether they were swallowed alive or dead. The parasite most commonly encountered was the Filaria piscium; but there were eleven other internal guests of the mackerel, besides two which fastened themselves on to the gills. Addressing himself in a very pointed manner to those who eschewed flesh-food altogether, the lecturer remarked that the vegetarians flattered themselves that by abstention from meat they escaped many of the parasitic ills to which flesh is heir. So they did; but, speaking figuratively, they "jumped out of the frying-pan into the fire." At all events, the most common parasite known in England was almost entirely nourished by the cellulose and protoplasm of vegetables, and it was by means of a vegetable diet, and by the careless use of unfiltered water employed in the washing of salads and other herbs, that certain parasites were introduced into the human frame. Some parasites might be starved by a milk diet, but he feared the same could not be said in favor of an exclusively vegetable diet. Be that as it might, instances had come within his knowledge where the employment of open running waters for domestic purposes had led to local endemic outbreaks of parasitism. He instanced the case of a Yorkshire village, and explained its nature, the passage of entozoal germs from neighboring piggeries into a little brook being the immediate cause of infection.

At the close of the lecture, Sir Lyon Playfair remarked that before he had taken the chair he had been inclined to think that as regards entozoa, it was, perhaps, better to remain in blissful ignorance than to be made acquainted with the disagreeable but highly important facts that had been detailed. He had, however, changed his mind, and now thought that we all owed much to Dr. Cobbold and other workers in this branch of science.

THE SPREAD OF INFECTION THROUGH THE AGENCY OF SCHOOLS.

In England the sanitary authorities have been vested with the power to require either the closure of elementary schools or the exclusion from them of children from certain districts or houses for a limited period, for the purpose of preventing the spread of infectious diseases by reason of school attendance. We believe that similar authority is accorded to the health boards in some of our States, and it should be in all. But it is a serious question to decide when to resort to closure of the school, and when the desired purpose can be accomplished by the lesser method of exclusion.

Dr. Buchanan, of England, has endeavored to solve this question; and from his report we note that the diseases for the prevention of which school closure or the exclusion of particular children will be required, are principally those which spread by infection directly from person to person, such as scarlet fever, measles, diphtheria, whooping-cough, and small-pox—the order in which the diseases are given being about that of the relative frequency with which their occurrence gives rise to these questions at schools. More rarely the same questions arise in connection with typhoid fever or diarrhœa, diseases which spread not so much by direct infection from one to another, as indirectly through the agency of local unsanitary conditions, such as infected school privies.

1. *As regards exclusion from school.*—It is laid down as a principle that all

children suffering from a disease which is likely to be dangerous to any persons attacked by it, should, however mild the disease, be excluded from school until there is reason to believe that they are no longer capable of communicating infection. And since it is rarely possible to provide effectual isolation for those who are sick, it becomes almost always necessary to exclude from attendance all children living in an infected house; for quite apart from the fact that they may convey infection by means of their clothing or otherwise, they may themselves be suffering from the disease in question in an, as yet, unrecognized form. Some infectious diseases, such as mumps and various skin affections, whilst highly infectious, can hardly be regarded as dangerous; but it will in the long run be advantageous in the interests of education to exclude scholars so suffering, lest by the rapid diffusion of infection it may be ultimately found that the regular attendance has become seriously diminished.

2. *As regards the closing of schools.*—This step should, under ordinary circumstances, only be enforced in the presence of an actual epidemic, and not even then unless there be a clear prospect that an end will be achieved which cannot be attained by the less comprehensive action of exclusion from school. In deciding which course should be adopted, the two most important points to consider are:

"(*a*) The completeness and promptness of the information received by the officers of the sanitary authority respecting the occurrence of infectious cases.

"(*b*) The opportunities which exist for intercourse between the children of different households elsewhere than at the school."

If the cases to be dealt with are few in number and the centres of infection are all known, exclusion will in most instances suffice; but if there are unrecognized centres through which fresh attacks at school are constantly arising, or if the attendance at a school has already become largely reduced through numerous exclusions, then closing of the school will be the best course to adopt. Measles is a disease which is very apt to defeat any such action as mere exclusion, because it is infectious at so early a stage as not to be recognizable; and more than one medical officer of health has found that the most effectual way of dealing with it has been to close a school altogether for a fortnight, and then to carefully exclude from attendance all children from households already attacked, as also all pupils who may subsequently develop symptoms of the disease.

Another point to be taken into consideration in deciding whether to close a school or merely to exclude certain scholars, relates to the facilities which children have for meeting together when away from school. If infection prevails and the children all live near together, it is quite possible that closure of the school may, by giving them ample opportunity for collecting together at play, bring them more in contact with fellow pupils from infected houses than any other course. But on the other hand, if the scholars come from scattered hamlets and isolated localities, and rarely meet except at school, then school-closing will probably afford the best means of staying any further spread of disease.

Schools may also have to be closed for a few days whilst sanitary defects, which have been discovered, are being remedied. Typhoid fever or diarrhœa may lead to the discovery of faulty drains, leaky cesspools, offensive privies, etc.; and it will then be of the utmost importance that the children should not be collected together during the performance of work that will probably cause temporary nuisance and foul emanations.

CHOLERA vs. FILTH.

In these days of rather general acceptance of the germ theory of disease, we are constantly hearing about micro-organisms, bacteria and bacilli. That we may have an intelligent idea or understanding of what we read, it is essential that we should understand what is meant by these words. Under the term of *micro-organism*, *bacilli* or *bacteria*, are grouped a variety of very small vegetable organisms, which possess the two prime attributes of living organisms, *i. e.*, growth and reproduction. It is to the influence of these little bodies that the germ theorists attribute the causation of many diseases. For practical purposes it is unnecessary to go into the subdivisions of these organisms (though we will give them in a future issue, for the benefit of those who wish them); what we desire is that you shall know what is meant when you read about *bacteria*. Having made this explanation, we desire to call attention to what seems to us to be one of the most singular discoveries that Dr. Koch has made in connection with the bacillus of cholera. Even those who have but little knowledge of sanitary science have been accustomed to regard cleanliness of person and surroundings as very essential to the preservation of health, more especially in time of epidemics. But, to our surprise, Dr. Koch tells us that the bacterium of putrefaction, the micro-organism that causes organic decomposition, is inimical to the bacillus of cholera—that it destroys its vitality. As corroborative of this observation, he tells us that during the recent epidemics in Toulon and Naples, when the streets and sewers were cleansed, thus removing the bacteria of putrefaction, the disease became worse, and that the scavengers of those cities, who, from the nature of their occupation, must have been continually inhaling these bacteria, were singularly exempt from cholera.

If this observation were proven, it would rather teach us that when we had reason to fear the approach of cholera, the proper course would be to allow our cities to become as dirty as possible. But we cannot accept such doctrine, for the simple but convincing reason that it is a *fact* that cholera generally, or indeed always, arises (in epidemic form) and ravages most in localities and among persons where filth is notoriously present. We all know that Egypt is an exceedingly unsanitary country, that the natives are a filthy set, and the same verdict can be safely passed upon the lower classes in India; while it is a matter of recent record that Toulon is a very dirty city, as also is Naples. We do not hear of cholera in Florence, yet this city is on the line of travel from France to Italy, and Florence is a notoriously clean city. We heard of but few cases, comparatively speaking, in Paris, with its very large and moving population, and Paris is a comparatively clean city. It is a significant fact that the violent form of the disease made a jump from Toulon, passing harmlessly through many cities to Naples, and that these two cities are two of the dirtiest cities in Europe. The exemption of the scavengers may be explained on the well-known law of tolerance—for it is universally known among physicians that "custom breeds tolerance"; it seems very plausible to suppose that these men, by the constant inhalation of diseased micro-organisms, have become so used to their presence that they are rendered insusceptible to their evil influence.

This view of Koch must not be accepted until it is indubitably proven, and even then, though it may be accepted (which we doubt very much) that filth is inimical rather than friendly to cholera, a neglect of cleanliness, while it might *possibly* be advantageous in one way, would be *sure* to produce epidemics of other and worse diseases, and to foster a chronic state of universal ill-health, worse than death itself.

◆

A CHINESE DINNER.

The *London Medical Times* gives the following account of a Chinese dinner at the International Health Exhibition:

The Chinese dinner is served in a room decorated in an appropriate fashion by a native artist. A wisteria and a bamboo tree, with birds flying about among the leaves, cover the walls. Gay and somewhat brilliant and barbarously stiff artificial flowers in bunches ornament the tables, lotus blossoms, pinks, and roses with unnaturally green leaves being the favorites. In a gallery at the end of the room sits a band of Chinese musicians, whose frantic noises and grotesque attitudes are certain to provoke the laughter which is said to be so great an aid to digestion, if they do not startle and agonize the visitor beyond the point of amusement. Around the central artificial bouquet on the dinner-table, several little dishes are placed, containing Chinese confections, sugared potato-chips, lotus seeds, and almonds, which are intended to be causually eaten during the repast. These seeds of the sacred lotus, never before seen in London, are soft, white, and about the size of a bean, and though about as pleasant as the seeds of a sunflower to eat, are not, we fancy, attractive enough to induce many who taste them to become "lotus eaters" in the sense usually attached to that term. Every guest is supplied with chopsticks and a little two-pronged instrument, with which to catch and transfix any tiny dainty. An attentive Chinaman, with a countenance which encourages confidence, volunteers lessons in the art of using the chopsticks; but in deference to European awkwardness, the ordinary knife, fork, and spoon are also supplied.

Dinner commences with the usual *hors d' œuvres* of dried and tasty meats, fish, olives, etc. Bird's nest soup is then served in tiny basins, and is very good indeed; but as this restaurant is directed by a French *chef* who only introduces Chinese dishes suited to European tastes, it may be but a symbol of what is common in China. The so-called birds'-nests of which this soup is made, consist only of gelatine, much like the constituents of the Iceland, or Carrageen Moss, and so form a very good basis for excellent soup, which will bear any amount of flavoring. As old traditions fade rapidly away, and are replaced by scientific discoveries, we are now told that the masses of glutinous material used by the Chinese as birds' nests are no birds' nests at all, but natural growths on the rocks where they are found, and are of purely vegetable origin, much like lichens or fungi. Be this as it may, they have long been supposed to be the habitations and work of certain swallow-like birds, and the illusion is difficult to dispel. With the bird's nest soup is handed in little cups of hot wine called "Shaohsing wine." It is made from rice, and to English taste is indescribably unpleasant. All sorts of little dishes follow this very distinctive soup, such as "*Saumon à la Nankin*," "*Filet de Sole à la Ravigote*," "*Crême d' Amande Pralinée*," etc., all of which suggest the French element of the repast. But besides the bird's-nest soup, the Chinese eat several things that we do not, and we recognise them under the Franco-Chinese jargon, "*Bêche de Mer aux Truffes*," and *Shark's Fin à la Bagration*." The first of these dishes is in reality the sea slug, or sea cucumber—Helianthus of the naturalist, "Hi sung" of the Chinee. It lies at the bottom of the deep seas off the coast of China, and measures about two and a half inches long by three-quarters of an inch thick. When dried it looks like a piece of india-rubber from which protrude rows of short spikes. It keeps well in this state and is cut open when cooked, having somewhat the consistency and taste of turtle, though much less attractive in every way. The "Shark's fins" are entirely cartilaginous, and depend on the sauce in which they are stewed for flavor.

A very peculiar and distinctive Chinese dish was absent from this restaurant, owing to misadventure on the voyage; but we have been privileged to taste it at a private dinner given by a friend who is interested in national peculiarities of diet. Eggs that have been encased in clay and buried in a dry soil for many years, are esteemed great luxuries by the Chinese, and are by no means to be despised. No trace of decomposition can be discovered in these ancient eggs, which, by their encasement and burial, are excluded from the attacks of bacteria, and the production of objectionable changes; but a chemical modification appears to take place in the constitution of the egg, both yolk and white become transparent, and when eaten are soft and creamy, and almost delicious, by no means resembling an ordinary egg; but as some of these eggs have been buried for half a century, time and isolation have mellowed and refined away any original roughness of character. It was intended that the English dinner-eater should, for the first time, have been initiated into the mysteries of these celestial delicacies, but a whole consignment of them came to grief in their friable cases on their way hither, so that at present we feel no temptation to bury our eggs for the benefit of the next generation. Native beverages seem to be very limited in the Chinese commissariat; we were only offered the "Shaohsing" wine, but were told that champagne was largely consumed in China—the pleasant waiter, with a smile that was "childlike and bland," told us that it was sent from England! Our repast was brought to a conclusion with a cup of "Imperial tea," served in the balcony overlooking the illuminated gardens, which might have been celebrating the Feast of Lanterns, so brilliant and beautiful were they. In Pekin this tea is said to cost eight shillings a pound. It is never sent to Europe, probably because our custom of adding sugar and milk to an infusion of tea prevents any appreciation of the very delicate and delicious flavor of these choicest of leaves, which are dried in the sun instead of over a fire. Each person's infusion of tea is made in a separate little china cup covered with a saucer, and this is poured gently into another cup, with the saucer slightly tilted, so as to prevent the escape of the leaves, by the attentive Chinaman, who volunteered pleasant remarks and explanations of the customs of his country in broken English. Towards the conclusion of the feast the musicians outdid themselves in noise, but their efforts are so excruciating that they play only for two minutes at a time by a sandglass. A sort of mimic opera is also introduced, in which the chief actor, who gesticulates and writhes about in an extraordinary manner, never utters a sound, but follows the noises and speeches made by a person behind him partly hidden from view. The finale of this unique peformance was even more alarming than the commencement, and sounded as if every plate and dish in the establishment were suddenly smashed, ending in a great flourish and whistle as of a terrific railway accident. Chinese applause does not consist in any of the ordinary demonstrations of satisfaction, such as clapping of hands or stamping of feet, but in a sort of cynical and rapid ejaculation of the sounds "Hi Haw," "Hi Haw," on the part of an appreciative audience.

MENTAL WORRY.

In these days of unparelelled progress, of strife and labor, when, in the race for wealth and distinction, each man's brain is pitted against that of his neighbor, in a country where ninety per cent. of those who embark in business ventures are doomed to disappointment and failure, is it any wonder that mental worry is the common condition of the majority of mankind, and that nervous exhaustion and ultimately serious and fatal diseases of the nervous system are gradually carrying off an increasing proportion of our citizens, while this mental worry of the father must necessarily transmit a deficient nervous organization to the offspring? We do not hear of mental worry and nervous exhaustion among the residents of the country, among farmers who live in accordance with the teachings of nature, whose very independence of the conditions of trade or of business, so far as concerns the necessaries of life, and whose contentment with the positions in which they have been placed, removes from them all causes for mental worry.

Mental worry does not necessarily imply excessive mental labor, though the effects of these two conditions are identical. It is well known that if a man starts out on a walk, and jogs along at a steady gait, say at two and a half miles an hour, he can accomplish a greater distance, with very much less muscular fatigue, than though he were to undertake to cover four miles the first hour, four and a half the second, and so on. It is the strain, the *abuse*, and not the *use*, that exhausts the muscles.

So it is with the brain and the mind. A methodical brain worker, who gives his mind ample time for repose, will accomplish infinitely more in the long run than he who urges the mind to excessive labor; because not only will better results ensue, but he will not lose the time that enforced idleness, owing to brain exhaustion, will make inevitable.

That mental worry is but the first stage in mental exhaustion, and that this latter condition is a most potent cause of physical diseases, we all know. The fact that so many eminent brain workers are daily dying from Bright's disease, is an evidence of the influence of excessive mental work upon the bodily organs. Worry jars the brain, so to speak; it exhausts it even sooner than excessive work. Can a man prevent mental worry?—when he has cause for worry can he remove himself from this malign influence? Yes, emphatically yes. In the first place he can remove himself from the surroundings that cause the worry; if caused by debt, let him realize that *worry* won't help him to pay his debts, but will rather tend to make them harder to liquidate, by obscuring his mental faculties. This same argument will hold good, no matter what may be the cause for the worry. Secondly, it must be remembered that a worried mind reacts injuriously upon the nutrition of the brain, and again, according to the reciprocal laws of nature, this ill nourished brain tends to perpetuate the mental worry. Hence, it is of paramount importance that the brain of a worried man should receive good food. If, as far as possible, the cause be removed, ample rest be afforded, regular hours and good, wholesome food be adhered to, and finally the brain be given that special food which it craves, there will be much less serious disease, the result of mental worry, than we now have to contend with. The special food of the brain is phosphorus, and particularly is this article requisite for an exhausted brain from mental worry. But we will not always derive the desired results from the use of the crude drug, hence various preparations have at times been offered, by which the efficacy of the drug has been greatly enhanced. Of these numerous formulæ, we have used many, and have had most satisfactory results in the "mental worry" caused by "things going wrong" from the use of the "syrup of hypophosphites," as prepared by James I. Fellows. Let us remember that we must nip mental worry in the bud, or it may become unmanageable; do not let it go on to mental exhaustion. We know that Dr. S. Weir Mitchell treats nervous exhaustion with rest and food; let us combat mental worry with the same weapons, with rest and with suitable food—for this preparation of phosphorus is, in reality, a most invaluable brain food.

VON PETTENKOFER ON THE POISONOUS EFFECTS OF COAL GAS.

The general question of the action of coal gas, whether before or after combustion, is naturally connected with the subject of the influence exercised by its various component parts on the human organism. There are, however, several important points specially relating to the action of gas which has escaped from underground pipes, and it is to this portion of the subject that Dr. von Pettenkofer (*London Lancet*) has lately been giving special attention, the facilities as to experiments afforded by the Munich Hygienic Institute having been of notable assistance in its elucidation. The circumstance that in its passage through a layer of earth gas loses its smell to a considerable extent, renders such escapes particularly dangerous. In a lecture recently delivered. Dr. von Pettenkofer gave some interesting details of authenticated cases, in which results of a more or less serious character had been produced by causes not at first apparent, but which had been afterwards referred to the effects of underground escapes of gas. At Roveredo two sisters, who slept in the basement of a house, awoke on three successive mornings suffering from violent headache and a general feeling of illness. This circumstance was attributed to the effects of an iron stove with which the apartment was heated, which was removed previous to the fourth night, when the mother shared the same room. The night was extremely cold, and the roadway was frozen. On the following morning, none of the inmates making their appearance, the door was broken open, and the three women were found motionless, the daughters being dead, and the mother so affected by gas-poisoning that she only survived a few days. A similar case occurred in 1871 at Cologne, when three persons in one family were killed in a single night. In 1879 the superintendent of a convict prison at Breslau died, and it was not until his sons had been found unconscious after sleeping in the room where he had died that the effects of gas were distinctly traced in connection with his decease. The young men soon recovered when brought into the fresh air. In all these cases the gas escaped from broken pipes under the roadway, and situated at a distance respectively 35. 98, and 35½ feet from the apartments where it had exercised a noxious influence. Another instance has been recorded in Breslau, where the distance was 115 feet. At Cologne the gas passed through a sewer channel and through the floor, while in the other cases it traversed layers of earth.

Dr. Max Grueber has proved that the removal from gas of its carbonic oxide allows it to be safely mixed with the air breathed by animals, which would, under ordinary circumstances, suffer from the presence of that oxide. Hence Dr. von Pettenkofer urges the necessity of gas engineers studying the question of its removal, such treatment having been successful with reference to other chemical agents. Carbonic oxide acts upon the blood-corpuscles. The expulsion of oxygen from them allows of the union of the oxide with hæmoglobin in such a manner that the presence, even to a very limited extent, of this combination, renders the blood unserviceable for vital processes. Dr. Grueber's researches have also demonstrated that the noxious properties of the agent in question rather depend upon its degree of concentration than upon the duration of its action, the human organism having at its command the means of freeing itself from carbonic oxide when present in small quantities. Though acting directly on the blood, carbonic oxide, according to experiments on animals, affects by means of that fluid the brain and spinal marrow. Unsteadiness in movement and weakness follow, and when the concentration is of a high degree, convulsions and death ensue. It is calculated that human life could not exist for more than thirty to sixty minutes under the influence of carbonic oxide at a high degree of concentration. The want of uniformity in the effects described in reference to the three instances quoted is attributed. by Dr. von Pettenkofer, to the inequality of the proportion of carbonic oxide present in the air of the rooms at various times. The fact of these cases having, as a rule, occurred in winter. has been the subject of detailed investigation, and the result arrived at by Dr. von Pettenkofer is that the normal heat of the rooms had attracted the gas, the difference of temperature between the internal and external air being much greater in winter than in summer. The variation in the degree of cold between one night and another would, in his opinion, sufficiently account for the difference in the gravity of the effects produced on the various occasions referred to, the gas being in some instances less forcibly attracted than in others.

THE MEANS OF MAKING MALARIOUS LOCALITIES MORE HEALTHY.

Before the International Medical Congress, which met in Copenhagen last August, Professor Tommasi-Crudeli of Rome, whose fame in connection with researches into the mysteries of malaria is world-wide, read a paper on this subject, in which he said that according to his idea, the disease was due to a living ferment, represented by parasitic organisms, the qualities of which he described. This ferment required certain conditions to develop itself. and chiefly—1, a temperature of not less than 20° Celsius; 2, a soil which possessed conditions favorable for the reception of this ferment; and 3, the action of the oxygen of the atmosphere on this soil. As regarded the temperature, it was easy to understand how the state of health in malaria-stricken countries was improved during the winter season, and how an epidemic could be brought about in a very short time if the temperature were suddenly to rise to a high number of degrees. A cooling of the atmosphere, of course, could not be effected by artificial means; but the conditions of the soil could be improved by going the right way to work. As means to effect this end, he instanced the draining of the soil with pipes and canalization; a combined method, consisting in draining the undersoil and carrying off the water, to prevent its stagnating in the upper stratum of the ground. Already, in the last century, Lancisi had put forward the theory that the occurrence of malaria might be prevented by means of plantation, and this theory was carried into practical effect. He (Dr. Tommasi-Crudeli) criticised the different methods of plantation that had from time to time been advocated, especially that of planting the affected districts with the eucalyptus tree. In these, he declared, he had no faith; and he cited several instances from his experience in the Roman Campagna, where these trees had been used, and where they had for a long period given complete satisfaction, until suddenly, in 1882, a severe attack of malaria occurred, whilst the other regions, where malaria used to manifest itself, were free from the disease. Speaking generally, it could be said that all the methods that had been employed to improve the condition of the soil had brought only a temporary, and not an absolute, bettering of that condition. Yet this precaution ought not, he thought, to be omitted. The problem was to make the soil sterile in regard to the malaria-ferment, without at the same time depriving it of its capacity to bear useful products. A thorough cultivation of the soil from all points of view was to be highly recommended. As one of the most important measures to be taken in the struggle against malaria, he laid stress on the adoption of the principle of strengthening the human organism as much as possible, so as to supply it with an increased power of resistance to the action of the ferment. Several agents had been used with this end in view; as, for instance, quinine and different kinds of preparations from the eucalyptus; but none had given full satisfaction. He had himself used arsenic as a preventative; and, as it had turned out quite a success, he had greatly extended his use of it. He had first used arsenic in the year 1882, and had last year and this year improved upon the method. The treatment with arsenic ought to be commenced before the season for the affection had begun; and it was necessary to keep up the medicine, and give it in increased doses. In Bovino, near Naples, he had experimented in this way with sixty-seven persons, and the experiment was attended with quite satisfactory results. It was, of course, necessary to use a great deal of precaution in employing arsenic, so as not to make patients arsenic-eaters. At the same time, the observations in regard to this agent were far from being fully ventilated. One of the main difficulties experienced was to make people take to the arsenic.

In conclusion, Professor Tommasi-Crudeli laid stress upon the favorable influence of airy and elevated sleeping-places, asking the Congress to bear in mind how, in ancient Greece, the people used to sleep on the roofs of the houses; how, in the malarial districts of Italy, the inhabitants were wont to select sleeping-places on the top of the old sepulchral monuments; and how the engineers working on the Panama Canal had their hammocks hung up between tall bamboo-masts. Malaria, he said, was, in those parts of the world where it was a common malady, so trying to the people that it would, indeed, be a very great achievement and inestimable blessing if means could be found that would give entire satisfaction, and that would certainly prevent or overcome this dreadful disease.

CIVILIZATION AND THE TEETH.

The *London Medical Times* says: If the fully-evolved man of the future is to be, as has been prophesied, a hairless individual, he is only too likely to be—excepting his indebtedness to the manufacturing dentist—a toothless mortal also; for which result a persistent preference for ornament over use must be mainly held responsible. If Helen of Troy possessed teeth as good as those of her Britannic contemporaries, she had probably as square a jaw, and a mouth of equally capable dimensions. One item in the civilized ideal of female beauty, the rose-bud mouth to wit, is undoubtedly accountable for a great deal of the crowding and consequent injury of the teeth especially observable in patients of the upper and middle classes, while the frequent decay of the back teeth even before the marriageable age is reached, and the persistence of the visible front teeth till shortly after that age, would seem to show that natural selection has some of the infirmities not usually associated with abstractions, and that "out of sight" is even for it "out of mind." Certain of the luxuries of modern life, and the operation of some of its so-called duties, aid in completing that destructive effect against which, curiously enough, another outcome of the civilizing process—inherited gout—alone seems able to oppose its recognized attributes of large, regular, strong, and well-enameled teeth. In the case of the negroes of the Southern States of America, a remarkable dental degeneration seems to have attended the changes in food and habits which followed the abolition of slavery. Formerly the slaves lived chiefly on corn-meal and meat: at breakfast, coffee, and with dinner, vegetables were taken in addition. Occasionally, wheat-flour took the place of corn (maize), but it was ground on the plantation, and not bolted. This food, served at regular hours, and combined with plenty of fresh air, exercise, and sleep, made the teeth strong and hard. Now the negroes eat fine wheat-flour bread, spend a large part of their wages in sweetmeats, eat at irregular times, and sleep too little.

The other side of the story is presented in a paper recently published by Dr. Kirk, who has under his care, in the Pennsylvania Institute for Deaf and Dumb, the teeth of some 400 children. By the time that the children have been a year in this institution, an entire change is noticed in the character of their teeth; they have become so hard that the instruments must be retempered in order to cut the dentine in preparing the cavities for filling; they become more firmly implanted in their sockets, and extraction is thus rendered difficult; several cases of the spontaneous arrest of caries, and of new formation of dentine, have been observed. These favorable changes are attributed to the dietary, which consists largely of various preparations rich in bone-forming material, such as maize, oats, and wheat, from which the layer just beneath the silicious coating has not been removed in milling, together with a liberal supply of milk and a limited amount of sugar.

Another important, but only lately recognized cause of dental decay, is the undue exaction of nervous energy—probably often combined with insufficient or improper alimentation. Recent observations have shown that carious teeth are common in modern schools in proportion to the educational standard adopted; and that the children in the higher forms have—out of all proportion to their more advanced age—worse teeth than those below them; while caries has not infrequently been noticed to commence suddenly, or to extend rapidly, during the period of examination strain. The greater work imposed upon the cerebral and other nervous centres is supposed to divert a portion of the phosphates and other mineral constituents which ought, by rights, to be devoted to the nourishment and growth of the dental structures; and it is not improbable that the secretion of the buccal glands and mucous membrane is modified under the influence of mental exertion, to the deterioration of the teeth.

A newly-awakened affection for certain hygienic reforms promises to accomplish much for us and for our descendants; but fashion and folly are doing even more in other directions. If it be true that the spread of a dietetic love of water is the real reason why the increase in the medical profession has not exceeded three per cent., something less innocent, surely, is responsible for an addition of 43 per cent. to the ranks of the dentists during the same period. Altogether, although the means of securing present comfort, and of avoiding an otherwise not distant era of toothlessness, appears quite within our reach, the prospect is not reassuring. A few generations will pass, and a posterity which may be learned in the application of "atmospheric suction," and in celluloid and gold plates, will universally sleep without its dental tools; it will miss the point of many allusions in the writings of its ancestors; and the figures which are now stereotyped in our handbooks of anatomy as representative of the infantile, the adult, and the edentulous jaw, will be regarded in the light of an anatomico-archæological puzzle. Teeth—in the sense in which we still use the word—will then remain only to such animals as are too stupid or too wise to be civilized and educated.

WHY CHOLERA IS ENDEMIC IN INDIA.

On another page we make the assertion that the lower classes of India are very filthy people. In proof of this, as a reason why cholera is always more or less present in India, and as an argument against Dr. Koch's theory of the inimical relations that exist between *filth* and *cholera*, we furnish the following *facts:* In India, one hundred and fifty million human beings use no closets or privies, defecating on the ground, wherever convenience may indicate, and drinking water from the same tanks in which they wash themselves. Most notably do these filthy practices obtain at Mecca, the Mohammedan Jerusalem. where thousands of pilgrims annually congregate, defecate and urinate all about the "Holy Well," the water of which is held in such veneration that it is religiously sent to all parts of India; thus liquid sewage is regarded by these deluded beings as a sure panacea for all the ills of man. It is a significant fact that although cholera is constantly imported from India into China, it never takes strong hold in the latter country, which Mr. Charles Cameron, of England, believes to be due to the fact that the night-soil is carefully hoarded in tubs for manure (an argument in favor of converting human refuse into manure), and that the majority of persons *boil* their drinking water, and drink it as tea. On the other hand, in Japan, where the drinking water is not boiled, the disease is much more common, though this country is less exposed to infection from India.

As a sure proof that impure drinking water is the most potent cause of cholera, we note that when Calcutta introduced a pure water supply, its cholera death-rate *at once* fell more than two-thirds of its old figures. Bombay was once a hotbed of the disease, but pure water was introduced, and for seventeen years, according to Surgeon-General De Renzy, the European population of that town has enjoyed almost as much immunity from the disease as the people of London. And again in Nagpore, in the seven years after the introduction of water from the Ambaghiri reservoir, the cholera death-rate fell to one-seventh of its figure during the seven years preceding that event, while in the population in the surrounding district, to which the new water-supply did not extend, it rose by close on fifty per cent.

Still we must not regard impure drinking water as the *sole* cause of cholera; for in Marseilles, which has a splendid supply, the disease prevailed to a considerable extent during the past summer. We must also look to our sewerage—in other words, we must *remove* FILTH. When the town of Bristol, in England, was threatened with an epidemic of cholera, the sewers were flooded with disinfectants; this precaution was used on several occasions, and in every instance the disease did not spread beyond the primary cases. We rely too much on quarantine. It is, of course, one means, and a very useful one, to prevent the introduction of the bacilli of cholera and of other diseases; but we assert that it is simply an impossibility for the most vigilant quarantine to absolutely prevent the occasional introduction of an infected individual, and when we remember what "one cholera stool may do" (see page 44) we must realize how limited are the possibilities of quarantine. We must supplement it with good water and thorough removal of refuse, or *thorough* cleanliness, for in these three points have we the solution of the question of how to prevent the ravages of bacterial diseases.

SANITARY FAULTS OF SCHOOL-HOUSES IN INDIANA.

The Indiana State Board of Health issues the following circular to county health officers:

The results of the sanitary surveys of the school-houses of Indiana demonstrate the fact that very many hygienic faults exist in connection with them and their surroundings. Many of these errors have been corrected, and school authorities have cheerfully complied with the request of health officers in this regard; but a new school year is about to be ushered in. Many of the houses were not occupied during the summer months, and we are satisfied that their surroundings and conditions need sanitary supervision. It is very desirable, therefore, that township and town trustees, and such other school authorities as are in your county, shall place in a good sanitary condition the various school-houses under their control. The following points require especial attention:

1st. Purity of the water supply.

2d. Ventilation of the school-rooms.

3d. Reparing of the buildings.

4th. Drainage of the yard and grounds.

5th. Providing suitable water-closets, and keeping them in good condition.

6th. Heating of the school-rooms.

7th. Overcrowding of rooms.

8th. Location and condition of the black-boards.

9th. Lighting of the rooms.

10th. Seating the rooms.

To insure a favorable hygienic condition for the schools, the following essentials are demanded:

A.—To clean out all sources of water supply, and place them in good condition; and where houses have no supply of their own, to at once furnish one.

B.—In the absence of a better system, to prepare the windows and transoms so that ventilation can be had without causing draughts of cold air to come in contact with the pupils.

C.—To place the buildings in good repair, with tight floors, good roofs, and underpinnings.

D.—To see that the yard and grounds do not admit of standing water, and to prepare gravel or board walks to keep the children's feet out of the mud.

E.—Suitable water-closets for each of the sexes should be provided with every school-house. They should be suitable, far enough away from the house to secure privacy, and not be a nuisance. They should be kept in good repair, cleaned and disinfected at least twice a month.

F.—The rooms should be so warmed that all may be kept comfortable; stoves and furnaces safe and in good order.

G.—The rooms should not be overcrowded. Not less than fourteen square feet of floor space, and two hundred and fifteen feet of breathing space should be allowed each pupil.

H.—Blackboards should not be placed between windows, and the surfaces of the boards should be a DEAD BLACK, not GLOSSY.

I.—The light should, if possible, be admitted from the rear of the pupil; NEVER from the front.

J.—Desks and seats of different heights should be furnished, to suit the sizes and ages of pupils.

E. S. ELDER, M. D.
Secretary and Executive Officer.

VICTOR HUGO ON SEWAGE IRRIGATION.

More than twenty years ago, Victor Hugo wrote as follows in *Les Miserables:*

The earth impoverished by the sea. Paris throws twenty-five million dollars a year into the sea. And this without metaphor. How, and in what manner? Day and night. With what object? Without any object. With what thought? Without thinking. For what reason? For nothing. By means of what organ? By means of its intestine. What is its intestine? Its sewer. . . . Science, after long experiment, now knows that the most fertilizing and the most effective of manures is that of man. The Chinese, we must say to our shame, knew it before us. No Chinese peasant, Eckcberg tells us, goes to the city without carrying back at the two ends of his bamboos two buckets full of what we call filth. Thanks to human fertilization, the earth in China is still as young as in the days of Abraham. Chinese wheat yields a hundred and twenty fold. There is no guano comparable in fertility to the detritus of the capital. A great city is the most powerful of stercoraries. To employ the city to enrich the plains would be a sure success. If our gold is filth, on the other hand our filth is gold. What is done with this filth? Gold! It is swept into the abyss. We fit our convoys of ships at great expense to gather up at the south pole the droppings of petrels and penguins; and the incalculable elements of wealth which we have under our own hands we send to the sea. All the human and animal manure which the world loses, restored to the land, instead of being thrown into the water, would suffice to nourish the world. These heaps of garbage at the corners of the stone blocks, these tumbrils of mire jolting the streets at night, these horrid scavengers' carts, these fetid streams of subterranean slime which the pavements hide from you—do you know what all this is? It is the flowering meadow; it is the green grass; it is marjoram and thyme and sage; it is game; it is cattle; it is the satisfied low of huge oxen at evening; it is perfumed hay; it is golden corn; it is bread on your table; it is warm blood in your veins; it is health; it is joy; it is life. . . . Statistics show that France alone makes a liquidation of a hundred millions every year into the Atlantic Ocean from the mouths of her rivers. . . . The cleverness of man is such that he prefers to throw this hundred millions into the gutter. It is the very substance of the people which is carried away—here drop by drop, there in floods—by the wretched vomiting of our sewers into the rivers and the gigantic collection of our rivers into the ocean. Each hiccough of our cloaca costs us one thousand francs. From this come two results—the land impoverished and the water infected. Hunger rising from the furrow, and disease rising from the river. . . . A system of elementary dainage as simple as the lungs of a man, and which is already in full operation in several villages in England, would suffice to bring into our cities the pure water of the fields, and send back into our fields the rich waste of our cities. And this easy see-saw, the simplest in the world, would retain in our possession the hundred millions thrown away. The present system does harm in endeavoring to do good. The intention is good; the result is bad.

SULPHUR AND MALARIA.

The influence of sulphur compounds on organic life is familiar. It is seen only too clearly in the aspect of vegetation in many of our manufacturing districts, while the probable dependence of specific diseases on an organized contagium renders the familiar method of disinfection by sulphur another illustration of the fact. Observations have lately afforded strong reasons for believing that the active agent of malaria also consists of low organisms. It is, therefore, not surprising if sulphur emanations should be found to exert a marked influence on malaria, and some interesting facts have been lately collected by M. D'Abbadie, to show that this is actually the case. In Sicily, deposits of sulphur and intermittent fevers are both common, but occur for the most part at different elevations. In some places the sulphur deposits are found at a low elevation in malarial plains. In these districts the laborers in the sulphur works enjoy an almost complete immunity from intermittent fever, not more than 8 or 9 per cent. suffering, whereas of the inhabitants of neighboring villages not less than 90 per cent. are attacked. In some travels in Greece, published by M. Fouqué, is an account of the ruins of a large city (Zephyria) situated in a marshy plain, in which it is impossible to pass the night without being attacked by ague. Three hundred years ago, it is said, the city contained forty thousand inhabitants and thirty-eight churches. Paludal fevers gradually destroyed the population. Twenty years ago only two hundred inhabitants remained, languishing and ill. They refused to leave the place, and the last of them died during Fouqué's visit. It is certain that malaria cannot have prevailed to the same extent during the period at which the town was in its rise and full development, and it is also noteworthy that the soil beneath the town contains abundant deposits of sulphur which was formerly worked in the vicinity, and the decadence of Zephyria dates from the discontinuance of these sulphur workings. Moreover, Fouqué has noted another instance of the same relation. The marshy plain of Catania is traversed by the Simeto, and is infected by fever. On the western border of this plain are some sulphur works, at which are a number of inhabitants who suffer little, although a village not far away is deserted. In Ethiopia, certain elephant hunters expose their naked bodies daily to a fumigation of sulphur in the belief that this will preserve them from malaria, and certainly they enjoy an almost complete immunity from the disease, although some of the districts are so unhealthy that not long ago a whole caravan perished.

BURIED ALIVE.

There are some persons who have a morbid fear of being buried alive, and waking up to the horrors of confinement in a coffin with a screwed-down lid and several feet of earth above them. Were such a thing possible, it would be too horrible to dwell upon. Dante's Inferno would convey no adequate description of the terrors of such a possibility. But, fortunately, such an occurrence is without the realms of possibility; it exists only in the imaginative minds of sensationalists. However, when a journal so widely read as the *London Lancet*, seriously discusses the question, admits its possibility, and suggests precautions against its occurrence, it becomes necessary to satisfy the public mind, and to relieve it of this fear. The *Lancet*, a most excellent journal, occasionally mars its pages by giving space to such sensational articles; but since the *Lancet* is read by many outside of the profession, and since the public love sensation, we suppose it is necessary, or at least politic, to occasionally gratify this morbid appetite. This journal seems to think that in times of serious and severe epidemics, when burial follows an hour or two after death, some victims of suspended animation may be buried while life is still in them. Admitting this to be so, in exceedingly exceptional cases (which we doubt), we must remember that life cannot be supported without atmospheric air, without oxygen; and realizing how little air could be contained in a coffin in which a human being is placed, we can at once believe that resuscitation from this condition of suspended animation would be simply an impossibility; it would be opposed to one of the most settled laws of nature, the necessity of oxygen for the maintenance of human life. Granting then, that some very few persons, among the billions who have died since the creation of the world, have been placed in their coffins while life was still in them, we can rest assured that within a very few minutes after the coffin lid was screwed down, the bare possibility of resuscitation that may have existed before, has departed to return no more till the last trumpet shall sound, and *that there is no possibility* of our friends or our own selves ever waking up to the realization *that we have been buried alive.* Such an imaginary occurrence will serve, as it has, to form the foundation of sensational novels; but it finds no confirmation in science, which forcibly pronounces such an occurrence an impossibility.

THE PREVENTION OF DIPHTHERIA.

This subject was treated by Dr. Jackson Piper, of Towson, Md., before the Sanitary Council held in Baltimore last month. The speaker believes that diphtheria can originate spontaneously in filth, hence he argues the necessity of diffusing sanitary knowledge, and endeavoring to remove the indifference of legistators on this subject.

"Such cases," he said, "admonish us to thoroughly scrutinize our surroundings, to keep away from diphtheritic patients and their attendants, to disinfect thoroughly the clothes and excreta, and to instantly remove the well from the infected house; or, if the latter is impossible to recommend outdoor exercise and sleeping-rooms with open windows the most distant from the infected room. A mild case can cause a severe one, and the disease can be carried by the healthy. Perfect isolation for the sick and their nurses, and cleanliness in the latter as to their hands, hair and clothes, are imperative. The temperature of those who are well should be taken once a day, and in this connection all families should keep self-registering thermometers, as life-saving instruments, giving timely warning of danger when the temperature goes above 98½° F., and proving a valuable aid of information to the physician; unnecessary petting of the patients, kissing them, or talking over diphtheritic wounds, should be forbidden; attendants should insert cotton in their nostrils, to be changed frequently, to prevent ingress of poisonous material; the air of the room should be cool, and the bedding and the patient's clothes should be kept fresh, and after convalescence the patient should receive a warm bath with carbolic soap and fresh clothes in another room. The funerals should be private and speedily over. We should fumigate the rooms and their contents by burning sulphur, and burn the bedding and all useless articles. The stamping-out process is full of trouble and expense, but it is the best and safest. The walls should be whitewashed or repaired, the furniture and woodwork should be washed and revarnished, and the floors scoured, using strong carbolic soap.

DAMP CELLARS.

Dr. Alfred L. Carroll, of New York, tells us very forcibly that a damp cellar, no less than a foul privy, is a constant and very great source of danger, because its unhealthy atmosphere reaches every room in the house, and may sicken unto death every member of the family. If it contains provisions or other articles in a state of corruption, the danger is at once fearfully increased, and the most fatal consequences may ensue. If, instead of being simply damp, it contains water from surface infiltration, or from a defective drain or soil-pipe, and the accumulation is allowed to remain, particularly in warm weather, a gaseous poison is emitted, which may spread disease and death over a whole neighborhood. From these neglected sources of disease the residents of many a palatial residence have been consecutively and fatally attacked. The attention of every housekeeper should, therefore, be particularly directed to the condition of the cellars and vaults attached to his dwelling, and the necessary precautions taken to prevent the accumulation of every species of filth or corruptible matter. It is in vain to expect that all the advantages resulting from domestic cleanliness shall be realized when the dirt, carefully expelled from the parlors, sitting and dining-rooms, is permitted to take undisturbed possession of the less frequented parts of our dwellings. To preserve health, the process of purification must visit every apartment, from garret to cellar—the latter, in particular, should be swept frequently, and the dirt thus collected immediately removed. The windows should be so constructed as to allow fresh air and sunlight, besides which, to insure perfect ventilation and dryness, the door should be kept open several hours every day, except in damp or rainy weather. An excellent means of purification of a cellar is whitewashing with lime, and this process should, on that account, be performed at least once every spring and summer. No expense or trouble should be spared to prevent the entrance of water into the cellar, or to drain it off, if possible, by means of sinks penetrating to a stratum of gravel. On no account should the drainage-pipe communicate with a sewer or privy cesspool, unless most securely trapped.

HEALTH-GIVING DISHES.

Dr. John Cowan very truly says: "To live a sweet, healthy life, implies the use of simple, nutritive food, cooked in a plain, simple manner, and as nearly in its natural relations as possible. A ripe, mellow apple, and a biscuit made of unbolted wheat-meal and water only, represents, when eaten and digested, every constituent required in the nourishing and building up of the body. Pure blood, firm tissue, clear brain, perfect health, and enjoyable life, would — could not help — result from the use of such plain, simple, prepared food."

We will, therefore, commence with this issue, and continue in successive numbers, to furnish a list of health-giving dishes, and trust that our formulæ will prove useful.

PORRIDGE, GRUEL, ETC.

Oatmeal Porridge.—To a pint of boiling water add two teacupfuls of meal, previously mixed smooth in a pint of cold water. Boil three-quarters of an hour; add salt to taste a little before taking from the fire. Fruit syrup, golden syrup, honey, and many other articles of a like nature, are often taken with porridge.

Wheatmeal Porridge.—This porridge may be made as above, only adding a trifle more meal than in the above. Meal from the entire wheat is best when ground at home, as it is almost impossible to purchase genuine whole wheatmeal.

Hominy Porridge.—Take the desired

quantity and add five times as much water. Boil half an hour. If allowed to become too thick, add boiling water.

Arrowroot Gruel.—Mix smooth with cold water, three-quarters of an ounce of arrowroot, then pour in one pint of boiling water; boil fifteen minutes, stirring well; sweeten and flavor to taste.

Oatmeal Gruel.—To a quart of boiling water add two tablespoonfuls of oatmeal, previously smoothed in cold water, stir well, take out spoon, leave to settle a few minutes, pour off top, leaving the coarse part; boil five or six minutes, sweeten and flavor to taste.

Onion Gruel.—Slice an onion, boil it in the quantity of water required for the gruel, till quite tender; then add oatmeal, mixed smooth in cold water, a little fresh butter, a pepper-corn or two, etc.; let it boil a few minutes, then strain it.

Crushed Wheat.—Into one pint of boiling water stir sufficient wheat to make a thick batter; add salt to taste; boil ten minutes. Eat with milk or sauce. When cold, slice and fry. The above applies to the packet wheat of Thurber & Co. If ordinary crushed wheat be used, a much longer time will be taken, and more water required.

SOUPS.

Split Pea Soup.—Boil one pint of peas, seasoned to taste, in three quarts of water till they become dispersed—the vegetables most preferred can be added about one hour before the soup is to be served. If the best peas are used, three and a half hours will be sufficient, but the exact time depends upon the peas used. This soup may be made with lentils or haricots, as desired. One tablespoonful of olive oil will improve the soup.

Carrot Soup.—Boil in two quarts of water, thoroughly, one pound of carrots, one ounce of onions, and a desertspoonful of olive oil, if desired strain through a seive: if strained, return to pan and simmer for a few minutes.

Herb Soup.—Half boil a quarter-peck of spinach, one ounce of parsley, and a few green onions or leeks, drain and cut them into small pieces; stew them in two ounces of butter or oil half an hour, and dredge in a little flour. Put half a pound of bread crumbs into two quarts of water; boil till smooth, add the herbs, season to taste, and boil ten minutes.

Hotch Potch.—Put four quarts of water into a pan, set it on the fire, cut into it four large turnips and one pound of carrots, one onion, one lettuce, and parsley. All the vegetables should be cut small. Season to taste and let all boil well together slowly. Any vegetables, such as green peas, beans, etc., may be added.

Kidney Bean Soup (a substitute for beef-tea).—Stew half a pint of kidney beans in a quart of water six hours in an oven; strain the soup without mashing the beans, season to taste and serve with toast. If too rich, dilute with water.

Tomato Soup.—Cut fresh, ripe tomatoes, add a little water, and stew one hour. If a clear soup is desired, strain through a sieve; stir in a little flour, or bread crumbs, and add a teaspoonful of brown sugar to a quart of soup, then boil five minutes. Tinned tomatoes may be used.

DRINKS OF WATER AND ACID FRUITS.

While really beneficial to the sick, the following drinks will prove both agreeable and healthful for everybody.

Lemonade makes a delicious wholesome acid drink. One lemon to a pint of water, cold or hot, is the common proportion in lemonade. Lemons should be well rolled before they are cut. It is said sugar should be dissolved in water before the lemon juice comes in contact with it. Therefore in making lemonade for the sick first put the sugar into a goblet, pour upon it half a pint of cold water, and cut into it the half of a lemon sliced thin. For a hot lemonade for the delicate, only the yellow rind and the juice should be used; the white inner skin makes it bitter.

Lemon Peel Water.—This makes a very agreeable drink, when there is a little looseness of the bowels. It may be made by carefully paring off the rind of one lemon, placing this in a hot jar or mug, and pouring upon it one pint of boiling water; cover close until cool, pour off the fluid, and add one tablespoonful of brandy or two tablespoonfuls of sherry wine.

Flaxseed Lemonade. — Pour upon three tablespoonfuls of flaxseed one pint of boiling water, cover close, and let it stand on the back of the stove for one hour, strain and add three tablespoonfuls of lemon juice and two tablespoonfuls of sugar—serve cold. This will make a very pleasant drink when the stomach is irritable, as flaxseed is very soothing.

Imperial Drink.—Put into a mug two teaspoonfuls of cream of tartar, the juice of one lemon and a little of its peel, and pour over them a quart of boiling water, stir, cover close until cold, sweeten to taste. This drink will prove most grateful to those who are feverish, whose head and hands are hot and dry.

Egg Lemonade.—To one egg, well beaten, add one tablespoonful of sugar, beat again until very light, when add two tablespoonfuls of cold water and the juice of one lemon; stir all together until well blended, then add one pint of pounded ice and drink through a straw or tube. This makes a nourishing and refreshing drink, when one is sick at the stomach

Egg Water.—Blend the whites of two eggs with half a pint of cold water by stirring gently (not beating), add half a teaspoonful of sugar, or half a saltspoonful of salt, to make it palatable. It is highly recommended for children with diarrhœa, while teething.

English Nutritive.— This is composed of equal parts of soda water and milk. It may be sipped slowly when there is much thirst, but inability to take much liquid.

Barley Water.—For somewhat more nutritive drinks, we have *Oat Meal Water*, *Barley Water* and *Rice Water*, each made by steeping two tablespoonfuls in a pint of water for two or three hours, then put on the stove to simmer until the water becomes a little pasty; strain and sweeten to taste. Barley and rice must be washed through two or three waters thoroughly, before putting to soak. Rice water is excellent for children with stomach and bowel trouble.

Simple Toast Water.— Toast water simple, good in cases of thirst and nausea from diarrhœa, is about one-fourth of a pound of bread toasted slowly to a very dark brown color (not burned), broken into a hot mug or pitcher, with a quart of boiling water poured upon it, covered close until cold. Serve ice cold.

Toast Water for General Drink.—The above may be improved by adding a tart apple, that has been baked with a teaspoonful of brown sugar, or stewed apple pulp and a little lemon peel, to the toast before the boiling water has been poured upon the toast; cover close, let stand an hour, strain and sweeten. Some persons, particularly old gentlemen, like toast water warm and sweetened with good molasses.

The Annals of Hygiene.

VOL. I. PHILADELPHIA, NOVEMBER 15, 1884. NO. 5.

THE BRAIN OF THE SCHOOL-CHILD.

Before the late meeting of The Social Science Congress in England, Dr. Francis Warner read the following paper:

Public education is presumably undertaken for two purposes, (1) the benefit of the child; (2) the benefit of the public. From both points of view it is very desirable that all the mental and moral faculties of the child should be cultivated. Inasmuch as the properties of mind depend to a very great extent upon the condition of the brain, it is highly desirable that the educationalist should have some knowledge as to what kind of a brain he has to educate, and that he should know something of its various properties and functions, not only its intellectual manifestations; such knowledge may enable him to preserve the balance of the powers of the brain as it develops.

It will be granted that the educational processes should be adapted to the children, and it must be admitted that the average educational processes must be adapted to the average child. Are the average methods of education adapted to all children? A while ago it was found out that the deaf and the blind could not be taught in ordinary school-rooms; these are now in part provided for by small special classes. I desire to draw attention to another class—the nervous, irritable children; children who are irregular in attendance on account of headaches, recurrent chorea, occasional fits; habitual truants whose brain defect can be proven; the child so dull that it remains among the infants and learns nothing. As a hospital physician I meet with many such children, though doubtless they are but a small percentage of the school population, and from what I see I think these are practically not educated.

Is this to the public advantage? Why are the deaf and the blind educated? A part of the reason is that they may not become paupers. Why are the children of slight brain defect uneducated—children tending to become passionate, to pick up bad habits and practice them, tending to criminality, or, if too feeble for that, to pauperism? They are not neglected intentionally, but because they are not known to the school managers: it is nobody's business to find them out; they are not classified, and take their chance with the rest. Now my argument is, we can discover such children, and pick them out by definite physical signs; we can pick out from a class the child not up to the average, the child tending to failure from want of brain-power.

To say that such children are few in every school is no reason for their neglect; we rejoice that but few have such inborn conditions as make them tend to social failure, pauperism, or crime, but we wish that none should thus fail. Let such tendencies be detected early, and pointed out to the educationalist that he may tend such cases carefully, helping to correct the defects due to brain condition.

I do not propose here to describe the physiology and pathology of the child's brain, but I think that some such knowledge should be acquired by those responsible for large schools. Having looked carefully through the books now being exhibited at the Health Exhibition, and having made enquiries of all the school publishing societies, I find works on physiology, but none on the study of the brain of the child. In the exhibition only one exhibit contains a health register, and that comes from Japan. The brain of the school-child should be undergoing rapid development; the school-managers cannot be responsible for its nutrition as far as that is dependent upon food, but they may in special cases regulate the teaching according to the brain condition.

Let it be known and remembered that every movement and every posture of the body is an index of the action of the nerve mechanism. Let the teacher and manager study the children, the way they stand, the manner in which they hold out their hands, the appearance of their faces; let them study the expression of each child's condition.

Particularly should observation be directed to note any bodily defect about ears, eyes, lips, etc., for when there is a visible defect, if only in an ear, the brain is often coincidently defective in its development.

In various published essays I have given these signs in detail, to refrain from giving them here. I believe that, roughly speaking, a layman may be taught the physical signs of brain conditions with sufficient accuracy to guess, with some degree of certainty, the children with slight brain defect, recurrent headaches, those who sleep badly, and are excitable; such teaching our profession can give to teachers.

Neglect in these matters does lead to unintentional cruelty to children, and to what I think more important, to the educational neglect of wrong-brained children. The teachers do not want to neglect them; such neglect is due to ignorance, for which the managers are responsible. Now, as to these wrong-brained children, they are worth helping; in most cases a genius is abnormal; the very faults and nervousness may be trained to become admirable qualities — sensitiveness of mind, mobility of mind; and the fidgety child may become an active man. Such children too often escape from an educational process unsuited to them, but still, better than no education. The nervous, excitable boy, always ill with sick headaches while at school, is excused from school attendance; at home he is idle; too often the parents are neglectful and unwise; and as he grows up, when drink or passion inflame him, he commits some act bringing him within the power of the police. I have seen the education of many such continued with success when removed from large schools, and placed at inferior, but small and quiet schools. Again, the weak-brained, feeble-minded child often gets so teased, that at last he cannot be induced to go to school; his attendance is excused on the ground of health. What becomes of him after that?

Two important questions arise, then

(A) How can wrong-brained children be picked out?

(B) What can be done for them?

A. How can the wrong-brained be picked out?

This raises the question whether the ordinary school-manager is able, unassisted, to discover the brain condition of the children. Should there be an occasional medical inspection to aid the managers to determine how they may help on the development of the children? This might be met by occasional medical inspection, say twenty times in the year. We are not speaking of questions of hygiene or cases of illness. At the inspection, an experienced doctor, looking over the school, class by class, would soon select those probably requiring some special care; the teachers would present for examination any child they found specially troublesome, often complaining, short-sighted, very passionate, etc.; and the cases of children excused from attendance on grounds of health would be considered; advice might be given on all cases. At a school I recently visited, a child was presented by the teachers as "not dull but somehow wrong;" grave brain defect was obvious; the advice given was to keep the child, if possible, at school and out of the gutters.

A boy was brought to me who was frequently absent, and often punished when in school; he had hare-lip, a defect of the heart, and an ill-developed brain. He has a right to be educated, and ought not to be punished for dullness of brain.

In examining a child as to brain condition, general excitability may be expressed by general fidgetiness and finger-twitching. The posture of the hand when held out by a healthy child is straight; it assumes a special posture in the nervous, excitable child, and a different position in simple fatigue. The teeth are usually ground in an ill-sleeping child. The parts around the eye are visibly relaxed in conditions of headache, making it unnecessary to take a child's word as to whether it suffers; we can see it for ourselves. As to training the brain to stand strains, I believe it is better for the nervous child to be educated. It must meet the shocks and strains of life, and if *properly* educated and exercised, it will bear those shocks and strains better than if untrained to think and to exercise self-control.

B. What can be done for these children?

I am not a technical educator; a want is pointed out, and we are prepared to show how this special class of children may be classified, and in individual cases or a group of cases we can say what will aid brain development.

In classes for the dumb I have seen cases very defective in brain being educated. In the highest class at Darenth Schools I have seen feeble-minded children being educated and sent out into the world. Small classes and special teachers could well manage the dull, the excitable, the wrongly-made children.

As to the expense of teaching a few children in a small class-room, instead of in a large room, would not the money be well spent in an effort to lessen crime, pauperism, and social failure? Should the endeavor be made to educate and save the child, or to reform the drunkard and criminal, and redeem the pauper to society?

I should like to see a tentative effort made. Provide inspection for a few large schools and two small class rooms with suitable teachers, and the truth of these statements would, I think, be soon demonstrated, and the value of classifying the brain-power of the children would be recognized. The school examiner classifies by intellectual functions only. Every weakly or troublesome child who now escapes from public education is a failure of the system. and every such child is likely to be a public harm.

SCHOOL HYGIENE.

Before the late meeting of the American Public Health Association, a paper on this subject was read by Dr. Felix Fomento, of New Orleans, in the course of which he said that within the past twenty years philanthropists have made many efforts in the direction of improving school hygiene. Societies for the protection of children have been founded in all cities of America, and in France tracts are distributed, on the subject, to all persons registering the birth of a child. Many incidental deaths are thus prevented. The London schools, and most other European schools, are excellently organized, the appropriation for public instruction in England being about $30,000,000. In France much progress has been made in education since the revolution, 135,000,000 francs being devoted in primary education. In Italy and all other countries of Europe, the same liberality prevails. In our country education is left to individual states, and national aid is not encouraged. In New York four and a half millions are annually spent, and compulsory education law requires fourteen weeks school attendance at least. But all these are of little avail without school hygiene. Is it not as necessary to teach your child the road to health as to fortune? The latter often depends upon the other. Physical development should precede mental, *mens sana in corpore sano*, was the correct motto. Vicious attitudes, crowded and badly ventilated rooms, poorly printed books, the system of over-study so much practiced at present, produce baneful effects, all of which might be avoided. The school-house should be as small as possible and removed from cemeteries. factories, and places of amusement and immorality. The school-yard should be as large as possible, a separate division for boys and girls, and there should not be more than forty pupils in each room. The room should be rectangular, ceilings high, windows tall, and heat should be moderated; the walls should be unpapered, the colors of ceiling and walls should be carefully studied; the flooring cemented or made of hard, polished wood. Spitting should be absolutely prohibited, as certain contagious diseases may thus be transmitted. Coughing should also be prevented, and the air should be constantly renewed at short intervals. The heating requires special attention, and closets are often foci of disease and should be carefully watched. Typhoid fever and diphtheria are often caused by uncleanliness in this respect. The return to school of children suffering from contagious diseases should be closely guarded; benches, desks and other school furniture should occupy our closest attention. Twelve thousand nine hundred and sixty hours are occupied by children on school benches, and curvature of spine and myopia are caused by wrong positions. Benches should be washed, should be wide and have a back; lid of the desk should be movable and be inclined; hat-racks should not be indiscriminately placed for all the children. Proper attitudes for all children should be enforced: they should not be allowed to lean forward in reading or writing. and the object should be held at least twelve inches from the face. The child should sit squarely at the desk; early rising and early going to bed should be enjoined. Myopia is caused by badly printed books, faulty attitudes, long hours of study without intermission, and poor light. Calisthenics or gymnastics are now introduced in most private institutions, and should be made compulsory in the public schools, and both boys and girls should be made to participate. The exercises should take place as far as possible in the open air or in a well-ventilated room.

A well-regulated system of gymnastics should never produce fatigue or exhaustion. The children should be taught elementary notions of hygiene. Few schools, however, possess chairs of hygiene, and in only ten states are courses given in hygiene in colleges and schools. Yet hygiene is perhaps the most important of all sciences. Sanitary regulations are looked upon as absurd and tyrannical. Public lectures on hygiene are not numerous enough—school children must be given a hygienic knowledge. Much disease might thereby be avoided. Hygiene should be taught in the elementary schools in a concise manner and afterwards enlarged upon, and boys and girls should both be taught. Hygienic instructions should, if possible, be given by a medical instructor; but so many good text-books on the subject are now in existence that the matter is much simplified. Special sanitary inspection of all schools should be made at least twice a month, as schools may be the cause of much disease. Plans for school houses should be submitted to building inspectors, to see whether hygienic requirements have been followed. Medical inspectors should see that all the defects above mentioned are obviated. Reports of the diseases among the children of his district should be submitted monthly. School programme of study is the most important part of the question. The curriculum of primary schools is too complicated, school hours are too long without sufficient intermission, and the method of teaching is too abstract. Children cannot concentrate their attention for a long while on study, and the hours should be proportioned to the age. Excessive nervous sensibility should be avoided, especially in the young. Children have an extraordinary faculty for learning language without understanding the grammatical construction. The necessity for short intermissions is absolute in order to avoid cerebral lassitude. The number of school hours varies from twenty-eight to forty hours a week in different countries. The best system is in Belgium, where the hours are regulated according to age. Studying at home is prohibited for the very young, and limited to a few hours for the older scholars. Cerebral lassitude can be relieved by proper sleep, a child six years old requiring at least ten hours sleep. Recess, hot lunch, and gymnastic exercises, drawing, singing, and reading aloud are all good. Vacation for at least two months each year should be insisted on for both pupils and teachers.

The following table is similar to that in use in Belgium, and has also been recently adopted in London:

	7 & 8 yrs.		9 & 10 yrs.		11 & 12 yrs.	
	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.
	Hours.		Hours.		Hours.	
Mother tongue	5	5	9	8	10	9
Writing	3	3	3	3	3	3
History and geography	1	1	2	2	2	2
Hygiene and philosophy	1	1	2	2	2	2
Natural science	1		1	1	2	2
Arithmetic	3	2	3	2	3	2
Foreign language	3	3	3	3	3	3 3
Drawing	1	1	1	1	1	1
Singing	1	1	1	1	1	1
Needle work		2		2		2
Gymnastics and recreation	5	5	5	5	5	5
Total hours per week, 5 days	24	24	30	30	32	32

SANITARY TRAINING IN PUBLIC SCHOOLS.

Before a recent meeting of the Medical Society of New Haven county, Connecticut, Dr. A. W. Leighton read a valuable paper on this subject in the course of which he said that at present our system of education, like many other existing institutions, was being made the subject of no little criticism. Its imperfections were being pointed out and desirable alterations were being suggested. It was evident that hitherto practical training had been made subordinate to the ornamental branches. In the improved curriculum what place should be occupied by sanitary knowledge? Such training must necessarily be elementary. but should nevertheless be comprehensive. Instruction should not be limited to physiology and personal hygiene, but should be extended so as to include public hygiene as well. This training should be introduced not only into institutions of advanced learning. but also into the graded schools where boys and girls are being taught, who at the age of thirteen or fourteen, must begin a life of independence, and come daily under the laws of life of which they were now so ignorant. Through lack of training of this kind, parents exposed their children to illness, and themselves to bereavement and pecuniary loss, because they failed to recognize the laws governing the transmission of communicable disease. Individuals brought upon themselves transient inconvenience or permanent disability by exposure, overwork, and innumerable other hygienic sins, whose import they did not realize. No one could compute the suffering, the wrecked lives, the immediate and remote disaster, the countless consequences of ignorance and disobedience of hygienic law, as applied to the individual and his or her offspring. But where and how should such teaching begin? Where should this helpful knowledge be inculcated? The home and the street were important educational factors, but we could not rely upon contact with parents in-doors and upon the social atmosphere outside for intelligence in health matters; for, although the children owed much of their practical knowledge of life to these sources, they were also sources of prejudice and superstition. These influences were responsible for many injurious personal habits, for the maintenance of quackery, and for the dogma that death and disease were dispensed for moral purposes.

This training should stand second to none in any system of elementary education, and in some form should be considered essential in every department of liberal or professional study. Many improvements had already been made in the teaching of children in the primary schools, but an examination of the whole scope of public instruction revealed inconsistencies that would not always be tolerated, and the most profound inconsistency of all was this: the teaching of everything and anything but the most necessary and elementary knowledge of the preservation of life and health. The public school course comprised an imposing series of studies. And yet the conspicuous absence of all health instruction from the grammar-school course, taken with the fact that the great majority of boys and girls could have no further school preparation for life, would lead one to infer that such beings were mere automatons to be fitted only for business, stored with the conventional accomplishments of polite society. and utterly independent of the laws of individual or general life or health. In the higher institutions of learning, also, the instruction on this subject was incomplete and inadequate. But it was only in the public schools that direction could be given to the main stream of youthful life as it flowed out beyond the sources of systematic education. Those who were familiar with people whose circumstances forced them into industrial occupations and the active struggle of life at an early age knew what a slight chance there was in after years for acquiring the essential knowledge for which we contended.

Believing that some elementary instruction in sanitary science in the grammar-schools was both feasible and advisable, it was suggested that the following addition be made to the course, if necessary, at the expense of the least important studies. To begin the experiment, a weekly conversation on this subject should be held in one of the schools, the scholars of the two highest rooms being divided into two classes according to sex, and the exercises being conducted by a physician or other person especially adapted to the work. In these talks mental confusion from multiplicity of details should be avoided. At first, simply the essential principles of sanitary science, including personal hygiene, should be set forth. First of all, the youth should be taught to give this subject conscientious thought, and then helped to knowledge appropriate to their age and mental capacity. All average boys or girls of fourteen years should know what clothing was best for them, and what and when to eat. They should know the penalties that follow heavy lifting and straining, the compression of the chest and abdomen, and the exposure of the feet and extremities to climatic influences. They should know the chief dangers of resorting to nostrums of unknown composition for maladies of the nature of which they know nothing. They should know what the death-rate was and why it varied, the function of quarantine, the essentials of house drainage, heating, and ventilation, and the chief results to be gained by the cleaning of cities, the avoidance of soil-pollution, and the pollution of drinking water. They should have an idea of what worry was and the effects of it, and of mental and physical work without sufficient relaxation. They should know the hygienic as well as the moral bearing of vice and intemperance, and that they were immoral chiefly because they were injurious. Especially should the laws of heredity be taught, and their applications, so far as known, to those diseases and traits which were most baneful.

Thus through elementary training might valuable results be hoped for. These children would be taught to be thoughtful and observing, and they would be dismissed well furnished with the material to continue these studies, and prepared to exert a favorable influence on public sentiment in regard to sanitary questions.

HYSTERIA IN YOUNG CHILDREN.

Probably the greatest affliction that can happen to any woman is to possess an hysterical temperament. Such a disposition makes her a burden to herself and to others. She is not to be counted upon, for no one can say at what moment these unfortunate evidences of a morbid nervous organization will make themselves painfully apparent. We all recognize the existence of hysteria in women, but, very probably, there are but few persons who know that the seeds of the disease are planted in young children, and that parents have it in their power to eradicate from their children the tendencies that, when the child becomes a woman, develop into full-fledged hysteria.

In the great majority of cases hysteria is hereditary; the child inherits the nervous temperament from a nervous father or mother, and it is of the utmost importance to the future welfare of the child that this morbid nervous sensibility should be eradicated. To accomplish this it is essential that the body, the physical being, should be thoroughly developed, if needs be, even at the expense of the training of the mind. Such children are not usually very robust, and it will be observed that as the body is developed, and the muscles grow strong, the excessively nervous condition will in proportion diminish. It will be noticed that such children are not very fond of play, their tastes running rather in the direction of intellectual pursuits and mental activity. They should be persuaded, or, if necessary, even *forced*, to go out of doors and join in sports and plays. Horseback riding, walking, swimming, and all athletic sports will tend to convert your nervous and hysterical child into a strong, robust woman. If an out-door life and plenty of exercise is important for the proper development of any child, it is doubly, aye trebly so for the offspring of nervous parents. As might be supposed, the stomach is not very strong in such children, hence dyspepsia is a very common complaint, from which we learn that caution must be used in regard to the food of such children. Their appetite is often capricious, and, when under full control of their parents, it is usually satisfied at improper times and with improper food. The diet should be a light one; albuminous food, easily digested, starchy material, young vegetables and fruit, cooked, or, if raw, quite ripe. Professor Forchheimer of Cincinnati, who has investigated the subject, considers that it would be better for the child to be removed from the nervous parent, as the example and influence would have a tendency to perpetuate and develop the disease. If the child *must* be sent to school, it will be well to select a school where the hours of study are short, so that much time will be spent in the open air. If then the development of the body, by exercise and proper diet, fails to relieve the trouble, it will be necessary to resort to the method recommended by Dr. S. Weir Mitchell, of Philadelphia, which essentially consists in isolating the child from its home surroundings, and from all those relatives who, through mistaken kindness, humor the child's vagaries, and thus foster the disease; placing it upon a milk diet, using massage and electricity, and suitable moral means to teach the child self-control. Let nervous and hysterical parents remember that they have it in their power to prevent the development of those chronic invalids, those helpless, pitiful objects, that are an annoyance to others more than a plague to themselves.

TENEMENT REFORMS.

At the late meeting of the American Public Health Association, Dr. Charles W. Chancellor, of Maryland, read a paper on this subject in which he wisely contended that it was important that the public should know the existing state of affairs and apprehend the risk and hazard which was involved in their continuance. If an investigation could be made of the dwellings of the poor in the large cities of America, it would reveal a frightful condition of misery and vice. Little has been done to improve their condition. It was well known that the lower classes were much given to intemperance. There was no real reason for that, unless it was that the sense of their misery superinduced the diseased craving for stimulants. It would be well if social reformers would regard intemperance from that point of view, as it was quite certain that the misery and squalor of the poor was largely the cause of intemperance among them. The great industrial classes of the country were entitled to protection, both as regarded their health and their avocations. Therefore it was necessary that there should be vigorously administered laws for the protection of the health of every citizen, and especially over the health of the industrial population should every safeguard be placed. A nation such as this, with 55,000,000 population, and vast manufacturing, industrial, and agricultural interests should protect the health of its citizens most adequately, as disease paralyzed labor and wasted capital. It should be the primary object of every intelligent government to protect the health and lives of its citizens, and to maintain its people in the highest degree of efficiency for the labors of peace and the struggles of war. Though social reform was in the air, never before was the misery of the poor more intense or their condition of life more hopeless than at the present time. The courts and alleys of our crowded cities presented spectacles of squalor which were a disgrace to civilization, and which ought to arouse the public to the need for a reform.

As to the means of remedying the evil, Mr. Joseph Chamberlain, a member of the English cabinet, went to the root of the matter, and spoke out with uncompromising plainness when he said that the authorities should proceed on the assumption that the houses which were unfit for habitation should be declared public nuisances, and the authorities empowered to compel the owners to put them in proper condition or require them to be closed or demolished. It was certain that much more was capable of being done than had as yet been undertaken. The owners of miserable dens which existed in many cities, should be compelled to put them in good sanitary condition. Overcrowding them should be strictly prohibited under a heavy penalty, and houses used for crime should at once be closed, and the establishment of similar houses elsewhere in the cities prevented by the due enforcement of proper regulations. To that effect the municipal authority should have the hearty co-operation and consistent support of public opinion. When it was necessary to purchase unsanitary houses to effect public improvements, the authorities should be compelled to pay only a price commensurative with the letting value of the house for legitimate purposes, not the added value in consequence of the owners winking at the use of their property for illegal and immoral purposes, or in consequence of its being overcrowded and let to more persons than it could properly accommodate.

In conclusion, Dr. Chancellor urged that local authorities be clothed with powers enabling them to successfully combat the evils arising from overcrowding, and from the occupation of unsanitary houses.

OUR MODERN JUGGERNAUT.

Under this title, the *New Orleans Times-Democrat*, so ably discusses the question of too much mental education for the young, and its remarks are so universally applicable, that we deem it wise to reproduce them.

"Who has not seen, about 8:30 o'clock in the morning, a procession of white-faced, hollow-chested little girls on their way to school? It is early morning, and they might be supposed to have had a refreshing sleep; yet they look worn and heavy-eyed, and in their walk there is none of the elastic spring of youth. They have not the buoyant air that one is wont to associate with childhood, but more as though they were burdened with the cares of a long and unhappy life. They skip not, neither do they laugh or jump, but drag wearily along, seldom lifting their joyless glances from the ground. With their fingers they clutch huge packages of school books, and upon their fragile arms hang baskets or buckets containing luncheon which, if they have the appetite to eat, they evidently have not the vitality to digest. No foot-sore dromedary, swaying mournfully through desert sands beneath the indescribable vertical sun of the Soudan, ever groaned beneath a burden so disproportioned to its strength as these children, in a civilized age and by the connivance of civilized parents, are compelled to bear day after day through years of their unhappy lives.

"The curriculum of the average modern school is to the children of this enlightened land what the car of Juggernaut was to the benighted Hindus. Its remorseless wheels, impelled by as cruel and ignorant a superstition as ever reigned within a Brahman's breast, rolled over those helpless little forms, crushing out health and joy, dimming the brightness of those baby eyes and blighting the blossom on the rounded cheek. It is applied to all comers, as the bed of Procrustes was to every luckless captive who fell into the monster's hands. Feeble or strong, robust or delicate, quick or halting, ambitious or reluctant, all are forced into that appalling mould and fitted to it violently, no matter how much of health or happiness, even life, may be the cost.

"The daily routine of the average child who goes to school would work up into a pathetic chronicle. That horrid pile of books which we see them carrying to and fro is as eloquent as a tragedy. It tells the whole story. It accounts for the sad face, the lack-lustre eye, the downcast glance, the heavy step. It reveals the secret of those joyless days passed in unnatural crouching over desks, and those murderous evenings, worse than wasted, because robbed of every innocent pleasure and health-giving recreation.

"It is a twice-told tale, of course. Men and women, enlightened teachers of a wholesome and a happy philosophy, have uttered and reiterated their glowing protests. Others will repeat it until the end of time. But will any eloquence and remonstrance, any demonstration, ever avail against this hideous tradition which has sunk its roots so deep into the soil of custom and observance—which is nourished by our selfish thoughtlessness — which is condoned merely because it has not been convicted of massacre? That may or may not be. But the spectacle of these children, made old and withered in their infancy, decrepit before they have completed their first decade, and weary when they should be brimming over with joy—that spectacle, which may be seen on any street corner in New Orleans daily, will be recorded against this generation as a deep and indelible reproach!"

DISINFECTANTS.

Dr. W. J. Miller, of Dundee, thus concludes a paper on this subject in the *Practitioner* for October, 1884:

"1. It is very doubtful that any efficient disinfection of a room can be practiced while it is occupied. Nevertheless, it is possible that the presence of a disinfectant, though not in sufficient concentration to kill contagium, may, by long continuance of operation, weaken it, and, if microzymes be the contagium, may so lower their vitality as to impair their power to reproduce their kind. A certain degree of probability is given to this by Prof. Tyndal's observation of the effect of discontinuous heating in sterilizing putrescible liquids, which led him to conclude that there is a period in the life-history of these minute organisms when they are especially vulnerable. It is, therefore, in the direction of good to employ some disinfectant during the progress of the case, and there is none equal, either in efficiency or in simplicity of application, to sulphur. It is exceedingly convenient in practice to use sulphur pastilles, as introduced by Dr. Littlejohn, each of which contains twenty-five grains of sulphur, one or two being used at a time, according to the size of the room. This should be done several times a day.

"2. The skin of the patient should be sponged several times a day with diluted acetic acid, by preference with the aromatic. This is especially applicable in scarlet fever, effectively disinfecting the desquamating skin. I only mention the method of inunction to condemn it emphatically. The strength of the solution must be regulated by what is found agreeable to the patient; a 1 to 20 solution of the aromatic acid, which has been referred to, is generally not too strong.

"3. For the final disinfection of the sick-room nothing equals sulphur. But it must be thoroughly applied. The Dundee sanitary authority uses about three pounds of sulphur to a room about ten feet square, carefully closing all apertures by which the fumes might escape and leaving the room shut up for about four hours.

"4. For disinfection of clothing, etc., the method followed here is exposure to a temperature of about 250° for three hours in a specially constructed chamber, the air being also charged with the fumes of about six pounds of sulphur. It is scarcely possible that any contagium can live through such an ordeal.

"5. Excreta of patients are best dealt with by Dr. Dougal's method—namely, mixture with hydrochloric acid diluted to 1 to 20. He has proved that this solution does not injure the metal fittings with which it comes for so short a time in contact. Clothes may also be thoroughly disinfected by this agent, and without injury.

"6. For hand disinfection, carbolic solution 1 in 20, acetic acid, and sulphurous acid, are almost certainly thoroughly effective.

"7. The question of disinfectant inhalations for lung disease, especially phthisis, demands a longer consideration that can here be given to it; but, when we consider that vaccine which had been exposed for three hours to air saturated with creasote vapor, and similarly for four hours to the vapor of eucalyptus, retained its infectivity unimpaired, that the germs to be acted on are far in the recesses of the air-vesicles, and that the inhaled disinfectant can only reach them in very weak dilution, if indeed it reaches them at all, it appears to me, although it is very disappointing to arrive at such a conclusion, difficult to place much confidence in this therapeutical expedient."

THE VENTILATION OF SEWERS.

We are pleased to note that the *London Lancet* considers that sooner or later sanitarians will discover the unwisdom of ventilating sewers, and as the phrase runs, "letting fresh air into drains" by openings on the street level. No one with a sense of smell can fail to have noticed the highly offensive emanations from street ventilators and "inlet" (!) gratings, frames and pans, under certain, or rather uncertain, states of the atmosphere. We fully recognize the difference between a mere effluvium and poisonous gas; but it must be admitted that the two are not infrequently associated, and the former may be accepted as a warning of the latter, although the air may be poisonous without being also offensive. All things considered, for danger and decency's sake, low level ventilation *must* be avoided. Every single purpose to be gained by it is gained by the adoption of pipes or shafts opening at high levels, and without risk. Meanwhile it is necessary to point out that these pipes or shafts must not be so placed or constructed as to act the part of supply-pipes, actually "laying on" sewer-gas into bedrooms and other apartments, by being so placed as to open near windows or chimneys. Some of the most expert and painstaking architects, engineers, and professed sanitary builders are committing this folly for the sake of a little economy. They think "it will do very well," and be "quite safe" to carry up a ventilating-pipe to the roof of a house, and finish it a foot or so above or on the side of a dormer or other window. Obviously whenever the wind happens to blow in the direction of the window, or to "blow down" —as so often happens—the gas escaping from the pipe must be carried into the window. Then, again, they will not, if it be possible to avoid doing so, use cowls. They like to finish the pipe with a little umbrella, or to bend the sides in a little on themselves, and say this "does better." If there be a chimney-stack in the neighborhood, 'the builder thinks he does a clever thing by attaching his pipe to the brickwork and carrying it a few feet higher. Probably he has heard that it is necessary to keep it away from the chimney, so he bends it out a little at an angle, and thus ensures the occurrence of the very *contretemps* he ought to avoid—namely, the "sucking down" of the sewer-gas into the chimney and its discharge into the rooms below. It is forgotten that every up-draught is accompanied by a down-draught, which either encircles it as a cylinder or in some way passes it in the chimney-shaft. This is a matter of exceeding moment. Shafts and pipes connected with sewers must be carried both *above* and *away from* all openings—whether windows or chimneys or ventilators or trap-doors —communicating with houses. There is no sort of difficulty in securing this measure of safety. It only requires a firm stand on the part of the owner or "authority" against the plausible arguments of the "professional men" and "experts" engaged. Simply insist that there shall be no opening of any sort in the ground level, whether with a "charcoal pan" or however constructed. Carry all ventilators to a level above the top of the house, and quite out of the way of windows and chimneys. If this be done there need be no fear of sewer-gas. If it be not done, however excellent the "system" adopted may be there must be fear—ay, and peril.

PREVENTIVE MEDICINE FOR THE AUTUMN.

The *Boston M. and S. Jour.* very truly says that the extreme changes of temperature so common in the autumn are, of course, peculiarly dangerous to the very old and the very young, that is, to those whose vitality and power of adaptability and resistance are especially limited. But in so far as the active and vigorous are less careful or less cared for than this former class, they, too, are liable to the penalties exacted by exposure to these climatic freaks.

To a certain extent an unremitting attention to the daily bulletins of the weather-bureau and a constant eye upon the barometer and thermometer give us an advantage over a preceding generation. But the leisure and ability to observe and profit by these warnings are not given to all, and even of those who are fortunate enough to possess a varied wardrobe and to live in a well-ordered house, many prefer to run the risks of a chill or a sweat to numberless changes of outer and inner clothing, and almost hourly directions about house-heating and ventilation.

It must be confessed that practically American flesh must still consider itself, notwithstanding modern improvements, inevitably heir to a certain number of these afflictions. There are, however, a fair proportion which, without undue self-solicitude, may be escaped, and we desire to call attention, in the interest of preventive medicine, to one fertile source of headache, sore throats, and diarrhœas peculiar to the months of September and October, which a very moderate degree of forethought might easily eliminate altogether. We refer to the re-occupation, without proper preparation, in the autumn, of houses and apartments which have been shut and vacant during the summer.

The custom of leaving the cities for the country or seashore during a certain number of summer weeks or months is becoming every year more general among a larger class of our city populations, and not only that, but every year the length of the period of absence is increasing. Now the return to town from the country, the exchange of the open air for the house, of the fields or the beach or the piazza for the pavements and the streets, of an active life for a sedentary one is of itself a sufficient shock to the sensibilities of any one's system, however accommodating. But when, in addition to this inevitable shock, the individual or family neglects to secure such mitigations of the conditions as are easily within every one's reach, a cry of distress from the overtaxed constitution is, it must be allowed, indeed justifiable.

It is too common to return to a town house, which has been closed and uninhabited, without taking the simple precautions of thoroughly ventilating the rooms and passages, and flushing the drains. This ought always to be done, and physicians should remind clients who are too careless to think of these things for themselves.

November would be a less solemn month than it now is were these simple precautions taken in September and October, and many a case of febricula, or typhoid fever even, for which the country is now held responsible, would be averted altogether.

CHILDREN WITH BIG BELLIES.

Parents are oftentimes annoyed because their children have very much distended bellies, and they fear the presence of tumors, or dropsy, or some other serious condition. We use the word *belly* in its strict sense, to distinguish the region we are writing about from the stomach, with which this article has nothing to do. Now, we must remember that certain articles of food only are digested in the stomach, while others pass on into the intestines or bowels, there to meet with the juices necessary for their digestion, and it is in the belly that the bowels are found. Starchy articles of food and fats are digested in the bowels, and when such distention of the belly occurs, it is because these articles are not digested, hence they decompose and liberate gases which cause the distention. When a child with a big belly has a clean tongue, with a good appetite, and neither belching of wind, increased thirst, nausea, or vomiting, Dr. Louis Starr, of Philadelphia (in a lecture delivered at the Children's Hospital of that city), tells us that we can rest assured that the stomach is not at fault, but that we have to do with bowel indigestion of the starches and fats. In such cases a careful regulation of the diet is most important. Starches and fats must be excluded. Three meals a day of the following articles of food should be taken: For breakfast, at 7.30 a. m., a bit of fresh fish, or the lean of a mutton chop, or a piece of tender beefsteak, with milk (either warmed or not, according to taste), and a single thin slice of stale bread, without butter. For dinner, at 2 p. m., the soft part of half a dozen oysters, a bowl of meat-broth, entirely free from fat, or instead of this a piece of lean beefsteak, roast mutton or beef, a little spinach, or well-boiled cauliflower tops, and not more than a single slice of thin unbuttered bread. For supper, at seven o'clock in the evening, one or more glasses of milk, with a single slice of unbuttered bread. For drink, nothing but *filtered* water. Starches and fats are digested by the juice of the pancreas, hence he gives such children one powder two and a half hours after each meal, containing two and a half grains of extract of pancreatine and five grains of bicarbonate of soda. To assist in reduction of the distended belly, he rubs it thoroughly twice a day with a stimulating liniment, such as turpentine and olive oil, one part of the former to three of the latter.

THE VALUE OF HUMAN LIFE.

The fifth International Congress of Hygiene held recently at the Hague was entertained by Dr. Jules Rochard, of Paris, with a paper on this subject. He called attention to the commercial value of human life and to the loss occasioned by sickness and death; and then proceeded to consider the question, whether hygiene was capable of producing improvement. In doing so, he referred to the disappearance of diseases which once devastated countries. The black death, which destroyed a fourth part of the inhabitants of the world, forty millions in Europe alone, had become almost unknown; and many other diseases, to which our forefathers gave most formidable names, only remained in memory. In the same way, diseases of modern days ought to disappear. Already, the occurrence of the plague was only sporadic; ague had still a few victims; but cholera still threatened. Small-pox, measles, and scarlet fever, were all diseases against which protection could be afforded. This was best known in the case of small-pox; and he was convinced that the time would come when a father would be punished for having unvaccinated children in his house as much as for having dynamite or gunpowder in his cellar. The value of vaccination was beyond all doubt; and in America and England precautions had long been taken against measles and scarlet fever. By adopting proper methods, disease would be made to disappear. The speaker referred also to the researches of Villemin and Koch, in their bearing on the reduction of the mortality from pulmonary consumption. Severe legislation was not admissible; but care should be taken to prevent the marriage of phthisical subjects; to separate the phthisical from other persons in hospitals, dormitories, etc.; and to prevent the use of tuberculous meat. Endeavors should also be made to cause the disappearance of malaria by the drainage of marshes. In Holland, however, it was scarcely necessary to say this, for the whole country was a marsh, which through the courage and energy of the people had been dried and converted into beautiful valleys. He would not absolutely assert that all the germs of death and disease could be removed by sanitary measures. Hygiene could not entirely displace medicine. For, even when hereditary diseases disappeared, new diseases took their place; anæmia, diseases of the nervous system, alcoholism, morphinism, and many others which were the results of the vices of mankind.

◆

THE NECESSITY OF SANITARY REFORM.

From an article on "The Principles and Practice of House-Drainage," by George E. Waring, Jr., in the November *Century*, we quote the following: "Houses that are perfect, even in the general arragement and construction of their sanitary works, are extremely rare. Those which, having begun perfect, continue so under daily occupation, are still more rare. So true is this that it is sometimes asked if it is, after all, worth while to encounter the additional expense and the constant attention that perfection demands; whether, indeed, the world has not got on so well in spite of grave sanitary defects, that it is futile to hope for an improvement corresponding with the cost in money and time. The most simple and the efficient answer to this is that the world has not got on well at all, and is not getting on well; that among large classes of the population one-half of all the children born die before they attain the age of five years; that those who come to maturity rarely escape the suffering, loss of time, and incidental expense of unnecessary sickness; that the average age of all mankind at death is not one-half of what it would be were we living under perfect sanitary conditions; that one of the chief items of cost in carrying on the world, to say nothing of the cost of burying those who die, is that of supporting and attending the sick and helpless; that another great item is the cost of raising children to or toward the useful age, and then having them die before they begin to make a return on the investment; that the great object of a well-regulated life is to secure happiness for one's self and one's dependents, an aim which is crushed to the earth with every death of wife or child or friend. There is a sentimental view, no less important, which need not be recited, but which is sufficiently suggested to the minds of all who have had to do with the sanitary regulation of houses by the frequency with which their services are called into requisition only when the offices of the undertaker have been performed. No cost and no care would be too great to prevent the constantly recurring domestic calamities which have had their origin, and which have found their development, in material conditions that a little original outlay and a constant and watchful care would have prevented.

◆

THE CHOLERA IN EGYPT IN 1883.

Before the late International Medical Congress held in Copenhagen in August, last, Dr. Grant Bey (Cairo) offered a few remarks on the epidemic of cholera in Egypt during the summer of 1883. He said that cholera, endemic in India, seemed to wander away for pastures new. As to the nature of the disease a great deal was known even apart from the admirable researches of Koch. With combined observations, we should find out all about the disease, and be able to stamp it out. He believed, with Dr. Cameron of Glasgow, that, if cholera could be stamped out in India, the rest of the world would have nothing to fear. As a contagionist, he was, at the same time, convinced that commerce would not allow quarantine. He explained how short quarantine and disinfection could be done to vessels coming from an infected port. He spoke about diarrhœa and its treatment, and of the merits and demerits of a *cordon sanitaire*, and the difficulties. As regards the treatment of cholera, he was led five years ago to try the perchloride of mercury, and he was more successful with it than with calomel or grey powder. Calomel he had found useful. It was probably changed in the stomach by free hydrochloric acid into bichloride. In one epidemic he had a mortality of 22 per cent. In India, in the Military and Civil Services, there was a mortality of 72 and 60 per cent. He detailed a case of partial quarantine that had a most happy issue; the facts could be verified by Dr. Varnoni of Cairo. In a mill there were employed 12 Europeans and 85 Arabs; the proprietor told all his workmen that they would have, if willing, to remain within the mill. Of the 85 Arabs 82 consented; three were dismissed and went to their families at Boulaq, where cholera was rife. The European workmen were allowed to go to their families at Cairo. The fact he wished to impress was that all the men who remained within the mill escaped; two out of the three Arabs who went to their friends died. Could there be a doubt that, if all the Arabs had gone, there would have been a frightful mortality? Facts such as these made him hold the views he did. The world was looking to medical men for light: not for theories, but for facts.

◆

PINE BATHS.

The Midland Medical Miscellany tells us of the practice at some of the watering-places of Germany of using pine baths, as highly beneficial in kidney diseases and for delicate children. The bath is prepared by simply pouring into the water about half a tumblerful of an extract made from the fresh needles of the pine. This extract is dark in color and closely resembles molasses in consistency, and when poured into the bath gives the water a muddy appearance, with a slight foam on the surface. The repugnance one feels to enter into such a muddy looking fluid, is dispelled as soon as the delightful aroma which arises from the bath is inhaled. Although there may be some doubt whether pine baths act upon the system in any other manner than as a tonic, still, as an adjunct to the daily bath, infusion of the pine extract induces a most agreeable sensation.

It gives the skin a deliciously soft and silky feeling, and the effect upon the nerves is quieting. The extract, when properly bottled and securely corked, will not deteriorate for a long time, and the cost for gathering the pine needles and extracting their tarry substance is not very great.

It has long been recognized that the atmosphere of pine forests has an invigorating and beneficial effect upon people with weak constitutions and suffering from pulmonary disorders. A very simple prescription of the physician is that the patient should spend several hours a day walking or riding through the pine wood.

To this we would add that the amusement of ladies and children at such places, of stuffing pillow cases and sofa cushions with these pine needles, and particularly with the strippings of the spruce, should be encouraged, as taking them out of doors into the very midst of the pines, with healthy exercise, and saturating them with the aromatic principle of the trees. The pillows and cushions are reasonably soft, and retain the aroma for a long time, to the pleasure and possible benefit of both the invalid and the healthy.

A SANITARY SCHOOL BUILDING.

A committee, consisting of some of the most eminent sanitarians of the country, have made a report on this subject, in which we find the following recommendations:

"1. It should be freely exposed to air and light, and should be not less than sixty feet distant from any opposite building.

"2. Not more than three floors should be occupied for class-rooms.

"3. In each class-room not less than fifteen square feet of floor area should be allotted to each pupil.

"4. In each class-room the window space should not be less than one-fourth the floor space, and the distance of the desk most remote from the windows should not be more than one and one-half times the height of the top of the windows from the floor.

"5. The height of a class-room should never exceed fourteen feet.

"6. Ventilation should be such as to provide for each person in a class-room not less than thirty cubic feet of fresh air per minute, which amount must be thoroughly distributed without creating unpleasant drafts, causing any two parts of the room to differ in temperature more than 2° F., or the maximum temperature to exceed 70° F. This means that for a class-room to contain fifty-six pupils, twenty-eight cubic feet of air per second should be constantly furnished, distributed, and removed during the school season. The velocity of incoming air should not exceed two feet per second at any point where it is likely to strike on the person.

"7. The heating of fresh air should be effected either by hot water or low-pressure steam.

"8. The fresh air should be introduced near the windows; the foul air should be removed by flues in the opposite wall.

"9. The building should not occupy more than one-half the lot."

HYGIENIC REGULATIONS OF WORKSHOPS AND DWELLINGS.

At the late meeting of the International Congress of Hygiene, M. Napias (Paris) discussed the duties of the State towards the laborer with regard to the preservation of his health and safety by hygienic regulations. He arrived at the following conclusions: In all countries, the necessity of legislative action on the part of the State for the safety of the workman had been recognized. It was desirable that further progress should be made in this direction, and that he should be protected by effectual regulations, by legal security for the hygienic condition of manufactories and dwellings, and for the safety, the kind, and the duration of the work, and for the medical care of the workmen.

Mr. Adolphus Smith (London) said that laws might indeed be made, but evasion was the order of the day. There were two causes for this: that the laws were capable of being evaded; and that those whose interests were much affected, and were most opposed to the law—the manufacturers—were often members of common councils and sanitary committees. The latter circumstances sometimes caused very lamentable results; the law was too often allowed to remain idle because it did not agree with the interests of the employer, and those who should carry it out became the transgressors, and remained unpunished; and it was very difficult to provide a sufficient number of inspectors. He said that, in a colony of Polish Jews in London, the women sometimes worked from seven in the morning until two at night in clothing manufactories, in unfavorable conditions, although the law protected them; but the law only gave the inspector the power of visiting the establishments.

Herr Dooremaal called attention to the frequent occurrence of keratitis and other diseases of the eye among the workmen of some callings, and suggested that this subject should be considered in a future congress.

Mr. Roth (London) thought that the work-people should be instructed what to avoid and what to fear.

MALARIA IS SUBJECT TO CORRECTION.

Those who have looked into the subject already know this, but it is always satisfactory to have the dictum of authority, hence we note that Dr. Richard McSherry, the President of the Board of Health of Maryland, entertains the same view and so expressed himself before the Sanitary Council of Maryland, in Baltimore, in September.

"Malaria is subject to correction," he said, "and so far as country homes go, or any homes, it holds to reason that proper measures should be in daily use, especially during winter, with artificial warmth, to let fresh air in and foul air out of the house. This seems to be a truism not worth saying, but I have gone into hundreds of houses where such simple precaution is entirely ignored. By pure water we do not mean water chemically pure, but water free from noxious ingredients. Very many diseases are propagated by impure drinking water. Cholera, typhoid fever, intermittent fevers, intestinal worms, and numerous other affections, befall our race from polluted water. Boiling and filtering are good correctives of water in the house, but, so far as practicable, polluted water should never gain admittance. The rivers that supply cities should be watched with the most jealous care to save them from all kinds of filth—animal and vegetable—and in villages or about country homes, it should be seen that there are no surface washings or underground channels, conveying to the well or spring organic remains or other impurities from adjacent sources, as the barnyard, privy or pig-sty."

GOVERNOR CARROLL ON "THE GLORY OF HYGIENE."

At the recent Sanitary Convention in Baltimore (September), Governor Carroll, of Maryland, thus eulogized hygiene and hygienists: "The names of the great leaders of science who have worked out problems by which man is, in a measure relieved of suffering, will live in history, when the memory of heroes of other fields has passed away; and the whole world looks to-day with interest at the results of that study, which seeks to confine pestilence within the narrowest limits, and thus to break the force of the greatest evils which afflict mankind. No one can read without the keenest sympathy the progress of the cholera through Italy, and, while we stand in admiration at the sacrificing spirit of her noble king, who, in the midst of this carnival of death, is there in person to cheer the timid, and to give comfort to the afflicted, *one cannot but feel that the practical application of the rules of health would have averted this great sorrow, and turned into other channels the most fatal epidemic of modern times.* Who can doubt that Paris, to-day, would have been in mourning for the loss of thousands of her people, had it not been for the discipline of science, and the stern efforts of her boards of health, which make the methods of prevention even more important than the modes of cure. What a solemn warning this is to us, and how surely may we become the victims of disease, if we neglect the system by which alone it may be averted."

HEALTH OF CHILDREN IN SCHOOLS.

Attention is frequently called to the fact that great mental development of children is very generally procured at the expense of their physical health. It is well known that mental education is carried to a very high point in Continental Europe, hence it is interesting to note that Dr. A. Hertel (Copenhagen) read a paper on the state of health of the children in Danish and Swedish schools, before the late International Medical Congress, detailing the results of an inquiry made by a Commission on 16,789 boys and 11,336 girls. The following statement gives the proportional ratio of illness in the different classes of schools:

Boys—Higher Schools: Lyceums and colleges, 32 per cent.; schools without Latin instruction, 28 per cent.; intermediary schools, 26 per cent.

Public Primary Schools in Copenhagen and in Towns: Free schools, 35 per cent.; non-free schools, 28 per cent.

In the Country: Sons of farmers, 27 per cent.; sons of laborers, 29 per cent.

Girls—Higher Schools, 39 per cent.

Public Primary Schools in Copenhagen: Free, 47 per cent.; not free, 40 per cent.

In the Country: Daughters of farmers, 39 per cent.; daughters of laborers, 45 per cent.

The most frequent diseases were scrofula, anæmia, and, after that, affections of the head. Myopia existed in all the schools to a certain extent; but, in some of the colleges and lyceums, 45 per cent. of the older pupils were myopic.

INFLUENCE OF FORESTS ON PUBLIC HEALTH.

Herr Swappach read a paper on this subject before the International Congress of Hygiene at the Hague, in which he spoke of the influence of woods on climate, on water-supply, and on the condition of the air and the ground-water, and referred to the success which, in France, Germany, and Italy, had followed the planting of woods, especially the improvement of the sanitary state of the inhabitants of the neighborhood of Rome through planting the eucalyptus. As regards climate, the removal of woods rendered the air moister, and raised the temperature of the air and soil, while the amount of rain falling in a given district before and after the removal remained the same; moreover, the inhabitants of the adjacent districts were no longer protected against the wind, and were exposed to the evils arising from the action of cold wind on the respiratory organs. Disafforestation also caused the accumulation of water in the soil, which had previously been removed by the roots of the trees, and drawn upwards in their growth. In this way districts became damp and marshy, giving rise to intermittent fever and other diseases. The planting of trees in towns was a hygienic measure worthy of the highest recommendation. The beneficial results of this were very evident in the south of France.

◆

SWILL MILK.

We are ususlly taught that swill milk, that is to say, that the milk derived from cows that are fed on slops is not wholesome, but Dr. George H. Rohé, of Baltimore, who read a paper on this subject, before the recent Sanitary Council of Maryland, considers that the danger does not lie in the food of the animal, but in the character of the animal's surroundings. If our city or suburban dairymen could be made to understand the importance of this, the outcry against "swill milk" would soon lose its effect. As things are at present, it is based upon a real danger. The milk of cows suffering from the so-called cattle plague, contagious pleuro-pneumonia or foot-and-mouth disease is also said to produce illness when drunk. The symptoms are generally referred to the gastro-intestinal tract. There seems no room to doubt that the flesh of animals suffering at the time of death with splenic fever, foot-and-mouth disease, symptomatic anthrax and contagious pleuro-pneumonia will, if consumed, produce serious or fatal diseases in the consumer. It is well known that the use of meat containing animal parasites, such as trichina spiralis, echinococcus or cysticercus will often result in very grave affections in persons eating such meat, especially if not properly cooked. It has been shown beyond question that the flesh of beeves suffering when killed from splenic fever, will produce this disease in the human subject.

◆

HOW TO MAKE A GOOD SALAD.

Water, oil and vinegar do not mix well together; and the first essential of a good salad is to have the lettuce, or whatever green may be used, perfectly *dry* and fresh. The lettuce should be divided and carefully washed in pure water, then thrown into a clean cloth and well shaken, until all the moisture is absorbed. The leaves should then be broken *by the hands*, into fragments, and placed in the bowl.

Three tablespoonfuls of the finest and purest salad oil may now be poured over the leaves, which should be carefully turned and mixed till the oil is all taken up by them. A little salt sprinkled from a salt dredger, and a few grains of black pepper carefully ground over the mixture from a table pepper-mill, and the salad awaits the vinegar as a final addition, which must be applied with discretion and very moderately. When allowed to come well in contact with the lettuce leaves, on the top of the salt and pepper, and thoroughly mixed, so that every particle of green is saturated with this combination of oil, acid, and condiment, without one particle of sediment or moisture having settled at the bottom of the bowl, the salad is ready to serve.

SEWING MACHINE WORK.

The question of the effect upon the system of continuously working the sewing machine as an employment has lately been receiving attention in Germany. Contrary to general opinion on the subject, Herr Eulenburg, a leading Prussian official, has written in vindication of the machine, quoting Dr. Blaschks's testimony in its favor. Dr. Ohausen, who was connected with the Berlin Hygienic Exhibition of last year, has expressed the opinion that the sewing machine does away with the principal disadvantage of hand needlework—the continued bent position of the worker. Only beginners at the sewing machine bend forward, those who have learned its use being able to maintain a healthy position of the body. The movement of the foot he considers beneficial to the organism, as it encourages circulation. The movements of the body in arranging and holding the work are, he thinks, such as to resemble in a certain degree a gymnastic exercise. When carried on in good air the working of the sewing machine is of advantage to the digestive and respiratory organs. Importance is attached to the kind of chair used, so that it may readily accommodate itself to the movements of the body. The garments should on no account be worn tight. Dr. Ohausen has found no consumptive tendency amongst the many sewing machine workers he has attended, and considers the work may even neutralize a hereditary disposition of that kind.

TUBERCULOUS MEAT AND MILK.

Dr. E. Vallin, of Paris, read a paper before the late International Congress of Hygiene at the Hague, on this subject, in which he said that tubercle was the same thing in man and animals; that the transmission of pulmonary disease from animals to man was proved; that the use of uncooked tuberculous meat was the cause of transmission in some cases; that tubercle might be destroyed by cooking, but at a higher temperature than is usually met with in households; that unboiled milk from tuberculous cows should be avoided, and that the boiling of the milk does not entirely remove the danger of transmitting tubercle. When we remember that tubercle really means consumption, and that tubercles are deposited in nearly all the organs of the body, destroying their ability to perform their duties, and that tuberculosis or consumption kills many more persons annually than any half dozen other diseases, we can appreciate the importance of these remarks.

THE LIGHTING OF SCHOOLS.

To the late International Hygienic Congress, Dr. Hermann Cohn (Breslau) gave a description of new methods employed for estimating the degree of light available in schools. It was known, that to look closely for any length of time at an object exposed in an insufficient light would produce short-sightedness; but it had always been difficult to establish the degree of light in each particular case. For this purpose, and availing himself of the contrivance of several inventors, Dr. Cohn employed a photometer, of which he described the construction, and showed a specimen. By this instrument, the degree of light shining on a piece of paper placed on a table could be told accurately. First, the intensity of light of the sky should be estimated so as to reduce the comparisons to the light of 1,000 candles, though, according to the weather, the sky often possessed more and sometimes less than this degree of luminosity. In schools, he found the light to vary from 1 to 1,000 candles, and a very precise comparison could now be established, which, with the aid of the photometer, would enable one to decide upon a precise standard of light that should be obtained; and without which the opening of a school should not be sanctioned.

ALCOHOL VS. CHOLERA.

While we do not intend to rant and rave about the injurious influence of alcohol, because we are convinced that it will do no good so to do, yet, from time to time, we will state plainly and impartially certain *facts*, leaving our readers to draw their own inferences, and to be influenced or not, as they may choose. It is well-known (no one denies it, whose opinion is worth anything) that alcohol will produce more or less inflammation of the stomach; a gastric catarrh results. This same condition may be produced from over eating or chill. When this condition exists, there is an excessive amount of mucus poured out into the stomach, which serves as a most satisfactory nursery for the reception and propagation of the germ or bacillus of cholera. A healthy stomach possesses the power, in most instances, of destroying the vitality of these germs when they are taken into it, and hence of preventing the development of cholera; whereas, to repeat, an inflamed stomach offers a suitable nidus for their development. The point to be made, then, is that during cholera times it will be better to let alcohol alone.

SEA-COAST HOSPITALS FOR SCROFULOUS CHILDREN.

The money of charitable philanthropists could not be better expended than in endowing hospitals at the sea-coast for the scrofulous offspring of the poor. Hygiene is of infinitely greater benefit in counteracting scrofulous inheritance than all the drugs in the world, and Dr. S. Engelsted, of Copenhagen, tells us that in his opinion a few weeks sojourn at the sea-shore is not sufficient for serious cases of scrofula; a more prolonged stay is necessary. There are many worthy women, who through no fault of their own are doomed to bring into the world weakly and scrofulous offspring. Such women, as a rule, are cursed with worthless, drunken and degraded husbands, who, generally die before their wives, leaving the poor widow without means of support. By furnishing to these children the means whereby they may be enabled to eradicate the taint which has been transmitted to them, and grow up strong, hearty and capable of providing a livelihood, in their old age, for the mothers, who have nurtured them, we are truly doing a great work of charity.

ICE IN THE SICK ROOM.

Dr. Mary Stinson, of Pennsylvania, tells us that in order to have ice at hand in abundance, a quantity should be cracked into small lumps and placed on a piece of white flannel, with a small hole nipped in its centre or lowest point, suspended in a wide-mouthed pitcher or other convenient vessel, into which the water will drip as it runs off the ice, thus leaving the ice dry upon the flannel. The vessel should be wrapped around with several folds of newspaper and placed on similar thickness in the coolest part of the room. When the lump is too large, put it upon a folded napkin, find its grain, and by pressing a strong pin's point into it, you can make pieces as small as desired, without making any noise to disturb the patient. A napkin should always be held under the spoon when ice is being given to the sick, to prevent it falling, by accident, on the person, which causes an unpleasant shock.

◆

NEW HOUSES.

It is generally known that very new houses are not fit for occupancy, owing to dampness of the walls, but it has never yet been attempted to say definitely just how much time should be allowed for the walls to dry out. A recent issue of the *Gesundheit* quotes a proposal drawn up by a Magdeburg society for defining the period during which new houses should be allowed to dry before being inhabited. It is suggested that if the building has been roofed during the winter months (Oct. 1st to April 1st), it should be allowed to dry for four months, while three months would suffice at other times of the year. There should be at least eight weeks between the completion of the internal plastering and the beginning of the occupation. In special cases, where technical and medical experts agree that the rooms (as ascertained by hygroscopic observation) were fit for habitation, it would be optional for building inspectors to shorten the above-named period from three to two months.

◆

TRAPPING DRAIN PIPES.

Editor Annals of Hygiene: Dear Sir—In No. 4, page 94, of your journal, Dr. Alfred L. Carroll is made to say, "On no account should the drainage pipe (to a cellar) communicate with a sewer or privy cesspool, *unless most securely trapped.*"

To my mind the last four words should not have been written, for two reasons: 1st, because sewer gas rapidly penetrates the water of a trap, as is frequently demonstrated by the minute openings in a lead trap, which are always found above the water line of the trap, and are unquestionably due to the action of sewer gases upon the metal after it has penetrated the water of the trap; 2d, the risk of an empty trap, in a dry time.

In view of these two dangers, allow me to ask, "Is it possible to *securely* trap such an outlet, with even a ventilating flue attached to it?"

P. S. Haskell, M. D.
St. Paul, Minn.

◆

THE CHOLERA AND THE KING.

While not desiring to detract from the noble conduct of the King of Italy in going fearlessly among the cholera patients of Naples, and encouraging them by word and action, yet we cannot forego the mention of the fact that his action and his immunity from the disease are strong arguments in favor of a dissemination of sanitary knowledge. The king, no doubt, was aware of the fact discovered by Dr. Koch, that the bacillus of cholera cannot pass through a healthy stomach; even if one were to drink water that contained these bacilli, the juices of a healthy stomach would destroy their vitality before they got into the bowels to cause the disease. Knowing this fact, coupled with the precaution of having all his food sent sealed from Rome, no doubt enabled the king to face the cholera with impunity.

MOUTH AND NOSE BREATHING.

In the International Congress of Hygiene, Dr. Guye (Amsterdam) read a long paper on the dangers of the ordinary habit of breathing through the mouth, as regarded both the respiratory and the hearing organs. The habit was the source of many diseases of the nose and ears. Respiration through the mouth was simply a complement of nasal breathing, the safety-valve when the ordinary respiration through the nose was obstructed or imperfect. New-born children and uncivilized people did not breathe through the mouth. The use of a respirator devised by Dr. Guye, consisting of a band placed over the lips, to prevent breathing through the mouth, had been followed by good results in many cases of nasal affections. He laid stress on the necessity of mothers teaching their children to keep their mouths closed.

STREWING POISONED GRAIN.

We do not know whether it is customary in this country, but among the farmers in England there exists a vicious practice of strewing poisoned grain on the ground for the purpose of destroying crows. Crows are no doubt very troublesome to agriculturists, and the desirability of preventing their doing damage to young crops is the excuse which is usually pleaded for scattering abroad quantities of poisoned seeds. But those who want to get rid of crows ought to adopt the good old practice of employing small boys to scare them. The legal penalty for placing poisoned grain on land should be (and in England it is) a heavy one. Such grain may be eaten by pigeons and other birds used for human food, and fatal consequences have been known to result in persons who have eaten the flesh of birds which have fed on poisoned grain.

COTTON-SEED OIL IN COOKERY.

This oil is being very extensively sold and used in lieu of olive oil. For many purposes it is equally as good, and is much cheaper. The vegetarians of London use it almost exclusively for frying purposes.

The slight smell of oil, which is evident when it boils, is obviated by placing a piece of bread in the pan during the heating process. Every good cook knows that fat of any sort should be allowed to boil well, and get rid of all the little particles of water, which splutter and crack as they pass off, before putting anything into the frying-pan to be cooked.

MUSTY HOUSES.

The retention of decomposing materials in furniture, says Dr. George Derby, of Boston, is a source of danger to health. Dining-room carpets receive a great deal in the debris of food. It is carried about in the air, and, in combination with vapor, attaches itself to woolen and cotton textures of every kind, to paper hangings, to whatever will absorb moisture. A house whose entry smells musty is dangerous. Avoid it. Don't live in it. Keep your children out of it.

The Annals of Hygiene.

VOL. I. PHILADELPHIA, DECEMBER 15, 1884. NO. 6.

AN ADDRESS ON HEALTH IN ENGLAND.

Since the same fundamental hygienic laws pertain to Americans as to Englishmen, and since all those interested in hygiene would like, no doubt, to know something about the science in England, and since everything that Dr. Norman Chevers writes is both valuable and interesting, we reproduce the following address from the *British Medical Journal:*

It may have appeared singular to many of those whom I have now been allowed the great honor and pleasure of meeting and addressing for the first time, that one who has worked so long in the East as to be almost a foreigner and quite a stranger, should presume to occupy this chair, and to speak to you authoritively upon English sanitation. My excuses, if any be needful, are that I stand here by invitation; that I have been a sanitary student for more than forty years; and that, during two lengthened periods in that term, I have paid close practical attention to the subject in England; while, in India, I was one of many who carried on steady warfare against a death-rate which, even now, under improved conditions, is, at the very least, twice as heavy as your own. It is perhaps well that the sanitary system practiced in these dominions should, from time to time, be reviewed by men of checquered experiences whose opinions are not trammeled by that party bias and those personal interests which are the most formidable bars to our sanitary progress.

I have said, your "sanitary system;" but pardon me for inquiring, has your sanitary practice in reality that large, effective, organized, and scientific command in operating—that power, not only in the lecture-room, but also in the State—which would assert for it the dignity of being recognized as a validly working system of public health?

A foreigner, or one who has been long expatriated, enters one of your model cities; he attempts to draw a full breath; he looks upward, and tries to obtain a glimpse of your sky; he becomes aware of a singular combination of odors; his eye ranges sideways along a double row of human dwellings; he glances over a bridge at the river-water; he notices the complexion of the inhabitants; he coughs and sneezes, and perceives that his hands have suddenly become black; and then he asks himself: Can these worthy, self-satisfied people seriously boast that they exist under a sanitary system? He then begins to make inquiry, to observe matters by the aid of eye and nose, and to search official reports and the public prints. If he commences his course of reading at a time when the popular mind begins to feel uneasy in apprehension of the advent of a great pestilence, all the better. On such an occasion, local self-confidence is shaken and babbles, popular belief in the omnipotence of the "system" begins to waver.

[The lecturer demonstrated this fact by quoting recent newspaper reports on the unsatisfactory condition of the Thames and the Lea.]

Hear what England's greatest living sanitary authority has frequently said during a long working lifetime, and has lately repeated, regarding the, it is to be feared, permanent state of the sewage of London; and then gauge, by these data, the difficulties which have for half a century beset the first of our special questions: What is the best method of dealing with (*a*) town-sewage, (*b*) the products of house and street scavenging?

The sage whose authority I have cited speaks thus of the drainage of England's metropolis: "Of its damp subsoils, of sewers that are extended cesspools, of two-thirds of its houses badly drained, of conditions of water-distribution that make good supplies bad and bad supplies worse, of ill-cleansed and foul-smelling streets, of overcrowding and slums." Within the last few days he has spoken to us* of the great outfall-sewers of the metropolis, which are vast extended cesspools, which give off foul gases into houses as well as streets, which have assailed the Government offices, and recently the Houses of Parliament itself."

A few weeks ago, we were told (*Daily Telegraph*, July 7th) that Sir F. Milner had given notice that he would inquire in the House of Commons whether attention had been called to the terrible smells in the neighborhood of Covent Garden Market, and that he would insist upon some vigorous steps being taken to cleanse "this filthy and dangerous quarter." Potently existent as many of the evils declared in such newspaper paragraphs as these undoubtedly are, they are too generally allowed to fester on undisturbed until some occasion of popular alarm arises. Their public denunciation, at this crisis, is merely an expression of cholera-panic. A clever inspector-general of Indian gaols, being asked what good was effected by his annual visitations, is said to have replied that it insured thorough cleansing of the prisons at least once in every year. Let us trust that, here in the United Kingdom, an occasional alarm of cholera will, like this doctor's inspections, lead us to a prudent, though late, recourse to plentiful ablution and clean-sweeping in our towns and dwellings.

Less than a month since, it was reported (*Daily Telegraph*, August 20th) that twenty-eight summonses had been adjudicated upon against the owners of certain insanitary houses in a London suburb, for "permitting the dwellings to be in a filthy and dilapidated condition, in most cases with foul drainage, so as to be unfit for human habitation." Will those who have come to this place intent upon finding a decisive solution to our question—What are our best means, legislative or other, of securing those improvements in the dwellings of the poor which are essential to the welfare of the community?—vouch for the perfect wisdom and validity of that municipal law, founded as it is upon the accumulated sanitary experience of the last five decades, and on various Acts of Parliament, which sentenced the owners of those slums to carry out the needful sanitary works, and to pay four shillings costs in each instance?

---

* *Precautions against Cholera:* an address by Edwin Chadwick, Esq., C. B., delivered at a meeting of the Association of Public Sanitary Inspectors, August 11, 1884.

Still, again, when it is seen, in a late report upon the sunshine records of 1883, that "the south coast of England had twice as many sunny days as the metropolis"; and when I recollect that, in my student days, we used to say that the sun never shone in Glasgow except on Sundays, when the great smoke canopy sometimes thinned, those who are strangers to our work will notice that we did not set ourselves an easy task in inquiring, what is the best method of dealing with the products of combustion?

No power of concentrating language would enable us to detail, within a space of twenty minutes, even a bare list of the grave sanitary shortcomings which every stranger must perceive within a week after he sets foot on British chalk. I must only attempt to make little more than bare allusion to a very few of the most salient of these defects. Precedence may be given to a question which is sufficiently designated by the title *Our Slum Death-rates.* One of our leading subjects for inquiry is, How far may the average death-rate of a population be considered an efficient test of its sanitary condition? To this it would be difficult to reply without entering into a little detail. That fashionable and delightful resort, Bilge-Water-on-the-Silver-Sands, is reported to "enjoy," to borrow a phrase from its only undertaker, let us imagine, the very exceptional death-rate of ten in the thousand. This singular phenomenon in vital statistics is revealed by an elaborate calculation, and is attributed to a variety of causes, which include the fact that forty-nine fiftieths of its salubrious area are occupied by the Riviera Roads, N. S. E. and W., Engadine Square, Crescent, and Parade, and that vast and sublime district, the Mount Olympus Estate. Here the mortality-rate of each family is about the same as it would be if they spent one-half of the year in a yacht and the other in a Highland palace; but what death-rates prevail in the few remaining lanes of the old smuggling village, Fish Alley, Wash-Tub Court, and Blockade Man's Corner? With only an alteration of names, I will give the data as I find them recorded in the published reports of unquestionably high sanitary authority, which I now hold in my hand. The mortality-rate in the Fish Alley group (some call it "Stinking Fish Alley") is not ten, the general town rate, but has been reported by the eminent Health-Officer as 45 per 1,000 for the last twenty-nine years. Dr. —— writes: I cite his report to the borough authorities verbatim, the names only being changed: "Calculated on population enumerated at the inspection, the death-rate of the group from all causes, during 1873, was 46.6 per 1,000, ranging from 21.0 in Section C (Smuggler's Point) to 84.4 in Section D (Fish Alley), Blockade Man's Corner being 44.5, and Wash-Tub Court 48.7."

"Yes," it may be said, "this is unavoidable; the men and women of the 'court' and 'alley' are a low lot—always drinking." "True," is the reply, "let us take, then, the most demonstrative of all slum mortality-rates, the death-rate of the poor little children under five, who 'never drink and seldom eat,'" The Health-Officer reports that, at Blockade Man's Corner, which is a comparatively airy locality, the deaths of young children to total are 31 per cent.; in Wash-Tub Court, they are found to be 64 per cent. It appears to me that, in all future returns, the statements of slum death-rates cannot be too strongly accentuated. Despite of, and indeed very much in consequence of, occasional assaults from interested local authorities, inquiry will go on, and, in proportion to the exactitude with which you may be able to gauge the slum death-rates and their causes, and especially the death-rates of the little children of the slums, will you succeed in giving a practically satisfactory reply to the third of the questions which we have been called upon to debate. By what means can the high death-rate of children be reduced?

Infantile death-rates have been given (Dr. Beddoe, art. "Mortality," Quain's *Dictionary*) as males 71, females 62 per thousand. Speaking on this subject a few months ago to one of our highest authorities on vital statistics, he said, "under some circumstances, the infant mortality is eight times as large as the ordinary rate." During the last eight years, the mortality-rate of soldiers' children in India has ranged from 50.26 per thousand in 1882 to 79.73 in 1878 (*Sanitary Commissioners' Report for* 1882). It is a generally recognized fact that the English mortality death-rate is rendered high by the extreme unhealthiness of the slum-children. This is illustrated by the comparative lightness of the death-rates of soldiers' children at home, which, in the four years ending 1880, were 24.08, 28.41, 26.86, and 30.28 (Marston and Ewart), against 71 and 62 among the infants of the general population. These ratios, however, are not strictly parallel, seeing that, both in India and in England, the soldiers' children are of all infantile ages.

With regard to the death-rate of older children, in his presidential address at the meeting of this department at Aberdeen in 1877, Mr. Edwin Chadwick, sketching the sanitary history of two large poor-law institutions for the care of destitute orphan children, "all the inmates of which, as a class, are of the most wretched type of children, all weakly and susceptible to disease," states that "the mean death-rates in these institutions have been steadily reduced to about 3 in 1,000, that is to say, to nearly one-fourth of the general death-rate of the children of the school ages, including the children of the well-to-do classes of the population." He adds, "It was recently stated, as evidencing the success of the 'boarding-out' system, that the deaths had not exceeded two per cent., and this probably may be taken as an average children's death-rate for the cottage—that is to say, 20 per 1,000, as against 3 per 1,000 in the district orphan institution."

Many of these infant deaths are, at present, quite beyond our means of prevention, as they depend upon hereditary causes. Still, there can hardly be a question that it lies within the power of man to reduce our children's death-rate to less than one-half of its present standard. The chief remedial means at our command is the sweeping away of the slums. A few years ago, a benevolent lady, who does admirable work among the poor of East London, told me that, having taken a party for a summer day's excursion into the country, it was pitiful to witness the amazement of aged people at seeing, for the first time in their lives, the growing wheat. It is in the homes of such folk as these that measures for the preservation of infant life are most needed. Let us trust that the Royal Commission, which has long been engaged, under England's greatest sanitary leader, upon the question of "Housing the Poor," will take the slum death-rate, and especially the death-rate of the infants of the slums, as the basis of their practical conclusions. It must have occurred to many that, as full growth and a strong constitution are the most needful endowments of the laboring-man, a portion of the money now spent upon school education might well be bestowed upon the object of assisting the children of the poor to live healthily up to the term at which national education commences, by purifying the atmosphere of their dwellings, and by giving them, among other advantages, fair water, effective drainage, and smokeless playgrounds, away from the gutters.

[After pointing out the unsanitary nature of the closets found in every English house, the lecturer then deprecated vainglorious boasting about effected sanitary improvements, and said that he fully recognized the admirable work done in the past half-century by such sanitarians as Chadwick, Miss Nightingale, Simon, Sidney, Herbert, Sutherland, Parkes, Gavin, Milroy, Benjamin Richardson, Netten Radcliffe, and George Buchanan; but the disheartening fact remained that, without powers, full almost to benevolent absolutism, the benefit conferred upon their fellow-countrymen, even by such enlightened administrators of the public health as these, must be very tardy in its advance, and very narrow in its scope.]

Forty years ago, the great sanitary questions which we are now assembled to discuss, especially the drainage and scavenging of towns, the combustion of smoke, and the diminution of our infant death-rate, were very nearly as advanced, in men's minds, as they are at this moment. I do not, of course, in any way undervalue the admirable work which has been done by many good men in many places, and especially at the meetings of this Association, now and in the last twenty-seven years, and which has still to be perfected, in treating great sanitary questions as matters of science and statistics. I merely insist, as all my predecessors in this chair have done, too often in vain, upon the necessity of persuading—would that I could say of compelling—the world's blockheads to act upon our scientific teaching. In a treatise on public health and vital statistics which I published two-and-thirty years ago (*Removable and Mitigable Causes of Death*, Calcutta, 1852), I expressed a wish to strike those stolid faces, and I am not ashamed to say that the wish still exists in its original vividness.

Undoubtedly, sanitation attained the most valid good achieved for it when the honored son of our beloved Queen became its leader; but, in this sublime peaceful contest between wisdom and folly, light and darkness, divine science and brute ignorance, the *ratio vivendi* and the *ars moriendi*, over which assuredly none below the archangels will sit as umpires, much difficulty will have to be encountered by many able officers; and success can, I believe, be most effectually commanded by the adoption of a measure frequently advocated, and never, I think, with more judgment than by Dr. Theodore Williams, at a late meeting of the Medical Society of London (reported in the *British Medical Journal*, vol. i. for 1884, p. 917). I cannot hope to live to see the day, but I confidently anticipate that all who do will find that in a very short time after the appointment of a Minister of Public Health, invested with great powers, against which all narrow self-interested opposition will be futile, and commanding large means, nothing more will be heard of sewage-poisoned rivers, smoke and fog-blocked cities, or of public buildings and attractive suburban retreats constructed upon burial-grounds, quagmires, or abandoned lay-stalls. They will also find that all the great questions which we have been considering here are undergoing practical solution, and that valid progress will have been made in carrying into effect these urgently needful public measures—the approximation of the death-rate of our mercantile marine to that of the Royal Navy, a most important question, upon which many, including myself, worked steadily ten years ago, but which, at the present moment, appears to have fallen into undeserved abeyance; the publication of medico-topographical and sanitary reports for all towns and districts in the United Kingdom, a measure which I have lately advocated in the Epidemiological Society; the sanitary administration of our cities upon an uniform plan; and the reform and strict regulation of our systems of medical education and practice. Due regard will, doubtless, then be paid to the control of our charities for the sick, of some of which, as they were ruled in his time, an old writer said: "They are like children with water on the brain—the limbs wither as the heads increase." The attention of the State will probably then be directed to the reclamation of our marsh-lands, the malaria of which is now the main factor in the causation of much grave English disease.

On one essential point we may feel confident. During the last ten months, I have heard from two competent authorities, speaking of two very important and quite distinct questions, the solution of which is needful for the public good, the expression, "we shall never be able to get those statistics." Assuredly, neither those nor any other statistics which he may think fit to demand will long be held beyond the grasp of a Minister of Health.

Duly empowered, Britain's Minister of Public Health will work, not as you are working now, struggling, decade after decade, for certain good ends which you can only hope, probably in vain, to achieve by another and yet another of those already innumerable Acts of Parliament, despite which every crime against sanitation is still paramount throughout the realm; he will be able to declare with confidence: "The public health of England is, at length, protected and administered by measures which worthily claim to be distinguished as a sanitary system."

INFLUENCE OF DIET ON HEADACHE.

Dr. Alexander Haig thus writes in the *Practitioner:* It is no new observation that a dietary largely vegetarian will cure, or at least greatly relieve, the pain, and render less frequent the attacks, of megrim; but, beyond a statement of the fact, I have been able to find but little in the way of explanation, and I therefore venture to think that a history of the following case may be both interesting and instructive, as tending to show that the headache and other phenomena are the result of a poison circulating in the blood, that that poison is a product of the process of digestion of certain foods, especially butcher meat, and that a cure is best effected by cutting off entirely the noxious food, and aiding the elimination of the poison by the kidneys.

A young professional man, somewhat over thirty, residing in London, the child of healthy parents, but with a distinct history of phthisis in certain aunts on the father's side, has suffered from headache as long as he can remember, and has distinct recollection of rolling on the floor in agony with one when about eight years of age. At college they were very troublesome, and have been so since in professional life.

He is active and muscularly strong, but light in build and weight; generally pretty cheerful, but subject to despondency at times when attacks of megrim are impending. He is hypermetropic, and the right eye is also astigmatic, but he has had glasses for these defects for years, as his eyes troubled him a good deal when he first began to read at college, and he had to get glasses then. The history of an attack as experienced in more recent years is generally somewhat as follows: he perhaps wakes in the morning, feeling less fresh than usual, and even his cold bath does not bring him up to the mark: he feels very empty before and shortly after his meals—and, especially in winter, but sometimes, even in the heat of summer, he suffers from cold hands and feet. He is much more easily tired than usual, and towards the afternoon there comes a thobbing headache which at its worst is generally occipital, but when less severe may be frontal, or all over the head. When at its worst, it is right in the centre of the occiput, is distinctively throbbing, and greatly increased by exertion or stooping down. If it comes on in the afternoon it gets worse in the evening and towards night, unless absolute rest can be indulged in; and is at its worst when first lying down in bed, when the pain may be almost unbearable. If sleep is at last possible, he may awake free from pain in the morning, or there may be slight pain, which again gets worse as the day goes on.

Pain is never strictly limited to one half of the head, nor is it, except when very bad—and only that about once in a dozen attacks—attended by sickness: but often when pretty bad there is intense coldness of the extremities and slight nausea.

In addition to the cold extremities, uncertain appetite, and easy fatigue already mentioned, there are often for a few days before the attack some irregularity, generally slight relaxation of the bowels, with a good deal of flatus, some pain, heat, or fullness in the right hypochondriac region, and dreams at night, which at other times are very rare. Tongue is clean, or slightly furred and rather red; pulse is slow, temperature at the normal, or below it. Urine is scanty, and high in color and specific gravity. There is a disinclination for liquids, especially cold liquids.

As to treatment, apart from diet, the drugs found useful were nux vomica (especially useful in improving the circulation in the extremities,) sal volatile with quiet, an external wramth, and purges, as calomel with colocynth and hyoscyamus pill; but when, as at one time, it became necessary to resort to these last almost every week, they were found too depressing.

I should have mentioned that the attacks were most frequent in the winter months, and during much sedentary mental work, and at these times ranged from one in a week to one in ten to fourteen days.

It was in the cold season, in the midst of much sedentary work, and having had two or three weekly attacks, that a strict vegetarian diet was first tried, with the immediate result that a whole month passed without any attack, there being no change of occupation or residence during that time. The diet was then continued more or less strictly for six months, through the cold half of the year, with the result that there were only one or two slight attacks in that period. Since then it has been found that a less strict diet will give practical immunity, and at present fish is taken twice a day, and an egg, or bit of fowl or game, may be substituted for it. The only thing to be absolutely avoided is butcher's meat, one meal of it at a friend's house being sometimes sufficient to bring on an attack. Beer, wine, and spirits, except very occasionally and in small quantities, are bad.

It was also found that two or three tumblers of hot water taken every night at bed-time gave increased immunity, and enabled him to take a little butcher meat occasionally without fear of an attack; the hot water was, I think, specially indicated by the scanty urine and disinclination for fluids, which were marked symptoms.

He found a little difficulty with the hot water at first, but he now takes it with pleasure, and says that he finds it more easy to drink three tumblers of hot water than one of cold.

Such, then, is the case and its history up to the present time; now to attempt an explanation of its symptoms and their cure.

Let us look at the symptoms in groups, and try to give them their true value. The uncertain appetite, slightly furred tongue, pain, heat, or weight in in the right hypochondrium, with the excess of flatus and irregular bowels (I should have said that the fæces are at times somewhat deficient in bile, but there is never any jaundice) may be taken as indicating gastro-duodenal catarrh, with some little congestion of the liver. The slow pulse and low temperature seem to point to impurity of blood, and this impure blood will cause the contracted vessels and cold surface and extremities. As for the headache itself, at least when most severe, it seems to me to be due to congestion, the mass of the blood being driven inwards from the surface, first, because it is worst when lying flat in bed, and better when sitting bolt upright, and second, because getting the surface and extremities warm by the application of heat speedily relieves it. But it may be equally well or better explained by the condition of the arteries observed by Dr. Brunton in these cases, which consists in their being contracted towards their peripheral extremities, but dilated towards the heart, so that a large jet of blood comes forcibly against the contracted point and gives rise to pain; and this would both fit in well with the above-mentioned effects of posture, and also account for the throbbing which is so marked when the headache is severe.

We have then as our central factor the impure blood, which on the one hand causes the headache, and on the other hand is itself due to imperfection of digestive processes.

If additional evidence of blood impurity was wanted, it might be found in the marked relief obtained from the eliminant action of purgatives and diuretics, and the washing out of the tissues and blood by the hot water process; and on one occasion it was noticed that a single one of Martindale's nitro-glycerine tablets sufficed to bring on at once an impending headache, possibly by preventing oxidation, which nitrites in the blood have been shown by Gamgee to do, and so making the blood still further impure.

As the nature of the impurity in the blood, and its connection with the digestion of meat, there is no doubt that more than one explanation is possible; but I think some hint as to the direction in which it is to be looked for may be found in the following passage in the fourth edition of Dr. M. Foster's *Physiology*, p. 298 :—

"Possibly also in the intestines, as in the laboratory, this pancreatic digestion of proteids in excess is accompanied by a considerable development of bacteria and other organized bodies, which create trouble by inducing fermentative changes in the accompanying saccharine constituents of the chyme."

Possibly the poison may be the result of some such fermentation, which it will doubtless be admitted may be more easily induced in some individuals than in others : for it is a matter of daily experience that different patients react very differently to the same drug ; and among foods, such as oatmeal, of which I daily comsume a large quantity, I know some individuals in whom the smallest quantity in their food is sufficient to induce an attack of urticaria."

Or if a more potent poison is required, in a recent article in *Le Progrès Médical** it is asserted that alkaloids are formed in the intestines during digestion similar to those that have been found in the cadaver, that these are excreted in the fæces and urine, and that if from any cause they are absorbed in excess or insufficiently excreted by the kidneys, they give rise to toxæmia, and are the cause of the group of symptoms now called uræmia, and of the toxæmia of constipation and of certain infectious diseases, especially that of typhoid fever.

I think the history of this case clearly points to some such poison as the cause of the headache, and that the gastro-duodenal and hepatic symptoms, slight though they be, are the indices of what is going wrong in the process of digestion, and of its primary seat: that a very little butcher meat is sufficient in this particular case to give rise to such changes is merely an example of a well-known law—it is, in fact, a very literal application of the saying that "one man's meat is another man's poison."

I am quite aware that there exist in the case as above related several of the ordinarily recognized causes of megrim, as hypermetropia and astigmatism, but the attacks never seemed to present any relation to the use of the eyes, and for many years past these defects have been counteracted by the use of suitable glasses. The headaches were very severe and frequent at college, but they were so at a time when the patient was doing more rowing than reading : but being in a sort of training for this exercise, he was eating largely of butcher meat three times a day. His teeth are by no means above the average; but again the headaches have extended over many years, with varying conditions of teeth, and quite irrespective of facial neuralgia or toothache, from which he has suffered, and of visits to, or absence from, a dentist: and against both of these, as possible causes, stands the fact that teeth and eyes remain unaltered, while a change of diet has effected a cure.

That the attacks were always less frequent in summer than in winter I attribute to the increased proportion of vegetables and fruit to the rest of the food, and the increased facilities for oxidation and elimination during the outdoor exercise of the former season as compared with those of the latter.

Whether this is the whole explanation or not, the fact remains that this young man was for many years a martyr to headaches, and at times professional work and reading made life so much a burden that he had thoughts of giving them up entirely; and all this in spite of advice and drugs, of which at one time he had plenty. Now he has been on this altered diet, from which butcher meat is conspicuously absent, for about eighteen months, and he has been practically free from his tormentor in spite of much sedentary work. He was unfortunately not weighed at the time the altered diet was begun, but he has not lost weight compared with what he was between two and three years back, and he is as active and feels as strong as at any period in his life.

---

*31 Mai, 1884.

It may be objected that megrim is known to get better in those who suffer from it after they reach the age of thirty, and that the alteration of diet was a mere coincidence; but that this has little or nothing to do with the result is, I think, shown by the remarkable way in which improvement immediately followed the change of diet, and by the fact that an attack can still be brought on by a return to butcher meat.

SOME DISEASES WHICH MAY BE MERELY SYMPTOMS OF THE EFFECTS OF POISONING BY SEWER GAS.

Dr. F. Gordon Morrill thus writes in the *Boston M. and S. Journal:* Notwithstanding the attention which bad drainage and defective plumbing with consequent evils have attracted of late years, I am quite sure that we are in the almost daily habit of overlooking the fact that certain diseases are often caused and prolonged by the unsuspected presence of sewer-gas poison. I believe that a considerable percentage of all cases of sore throat (including both forms which tonsillitis usually assumes), trouble of the digestive tract, neuralgia, rheumatism, pneumonia, gout, asthma, and even so-called "nervous prostration," is attributable to this cause; and I have named these affections in the order of frequency with which they have occurred under my personal observation when good proof of their causation or prolongation by the presence of sewer-gas has been obtained.

The cases which I give are merely outlined for the purpose of illustration (as their only claim to interest is based upon their ætiology), and are fair samples of a respective number of each kind which I have seen during the past five years.

Case I. Gastro-duodenal catarrh. A. B., aged six, had a very severe convulsion December 10, 1883, which proved to be a manifestation of the above-named disorder, the symptoms of which had been well-marked for a month preceding. Under a proper regimen or diet and medicinal treatment the case progressed favorably for a fortnight, when a relapse occurred, and the child seemed as far from recovery as ever. The peppermint test revealed trouble in the bath-room adjoining her chamber, which was promptly remedied and speedy recovery followed. A younger sister, who had suffered from nausea and diarrhœa during the forty-eight hours preceding the examination of the drainage, at once got better, and both children have remained perfectly well ever since.

Case II. Diarrhœa of a watery character. C. D., aged fourteen, was suddenly seized with intense abdominal pain in April, 1879. Numerous watery discharges soon followed, and persisted in spite of energetic treatment until the third day, when the trouble ceased, only to return again in a grave form (for now blood was present in the discharges) twelve hours later. A break n the drain under the cellar floor was found and repaired, and the child at once recovered. This would read well if reported in full as a case of "winter cholera."

Case III. E. F., aged fourteen, had been under the care of an eminent practitioner during the four months preceding my first visit. Her symptoms were weakness, progressive emaciation, and great distress after taking food, the cause of which neither physical examinations nor the condition of the urine revealed. The long continuance of her trouble, its mysterious nature, and the fact that previous treatment had obtained no better results, led me at once to have the drainage examined, strongly suspecting that something wrong would be discovered. The result justified my suspicions, for the waste pipe of the bowl in the adjoining bath-room was found untrapped and leading directly into the soil pipe (which was not continued up through the roof), and a bad break was discovered in the main drain. A slow but steadily progressive recovery followed the necessary repairs.

Case IV. G. H., aged forty-two; mother a chronic consumptive; the lady herself of poor physique and worn out with family cares, had pneumonia, right apex, front, December 10, 1882, from which she very slowly recovered. January 20, 1883, harsh respiration still detected over seat of trouble. Progressed slowly but favorably until February 5th, when a sudden attack of watery diarrhœa, accompanied by pain and a great many discharges, reduced her greatly. This condition lasted in spite of all remedial measures for five days, when the defects of drainage which had been discovered meanwhile were remedied, and the diarrhœa ceased as quickly as it had begun. The patient's condition was such at one time as to excite grave fears, and I think a possibly fatal result was avoided by recognizing the cause of the trouble.

Case V. Neuralgia. A young lady, aged twenty-three, who had been subject to paroxysms of intense pain in the hepatic region during the two winters preceding my visit, was seen by me for the first time November 28, 1883, on which occasion the paroxysm was severe enough to require the hypodermic injection of one-half grain of morphia. A history of her trouble revealed the fact that while absent from the city during the summer months she never had pain, but that upon her return to town the paroxysms at once began, and towards midwinter occurred with great frequency. She had been treated homœopathically for a long time as a case of congestion of the liver. Examination of the plumbing revealed an absence of any trap under the set bowl—which in this case was placed near the patient's bed. This deficiency was supplied, and the pain has never returned.

I can recall a number of cases of neuralgia in which sewer gas has played an important part, and mention this one merely on account of its somewhat rare location.

Case VI. Tonsillitis. J. K., aged thirty-seven. Subject for years to inflammation of the tonsils (accompanied by enlargement, but no deposit of any kind), which would confine him to the bed. In 1880 he came under my care twice with this affection.

No trap under set bowl. The patient, who is an active business man, decided to prevent any possible further trouble from this source, so had the pipe cut and sealed up, and a large jar placed under the bowl to receive the flow-off. Since that time he has not had a tonsillitis.

Cases of follicular tonsillitis are often attributable to sewer-gas poison, and numerous instances illustrating this fact have come under my observation, with the details of which I will not trouble my readers, as I think most of us realize that both this trouble and the ordinary erythematous sore throat may be thus caused. Dr. Langmaid informs me that in cases of public singers sojourning at hotels he has on several occasions advised cutting and sealing the waste pipes of set bowls to hasten the cure or prevent the recurrence of throat troubles.

Case VII. Rheumatism. L. M., aged forty-two, subject to very severe attacks of inflammatory rheumatism and also gout, the latter being hereditary. In the house which he lived in, cerebrospinal meningitis, pneumonia, scarlet fever, and nearly all the other ills which flesh is heir to held full sway during the two years following the introduction of modern conveniences into an old-fashioned family mansion. His wife, too, had two severe attacks of rheumatic fever during this period. Competent authorities pronounced the entire arrangement of plumbing and ventilation to be faulty in the extreme, and L. M. decided to seek another residence, which he speedily found. Results: In his wife's case no more rheumatism; in his own case neither rheumatism nor gout for eighteen months, when an attack of the former followed long exposure on a marsh during a shooting trip in the West.

Case VIII. Pneumonia. An aged lady, the grandmother of Case II., a monomaniac on the subject of warmth, who never ventured out-doors from November 1st to the middle of May, had an attack of acute pneumonia in April, 1879, after a winter passed under the protecting influences of furnace heat, open fires, window strips, and numerous shawls and wraps of all kinds. At the same time another member of the family had watery diarrhœa (Case II.) and I think both diseases may be fairly attributed to the same cause.

Case IX. Asthma. A little girl, aged eight, had severe paroxysms of asthma in the winter of 1878. The patient lived in a house where numerous faults in drainage and plumbing were discovered. The family were in poor circumstances, and the terms of their lease were such as to render them responsible for all repairs, while their lack of means prevented their seeking another residence until the present lease expired. Up to the time of their removal (October, 1878), the child continued to suffer from asthma, but the attacks ceased immediately after changing her residence to a house where the sanitary arrangements were good.

Case X. Nervous prostration. Mrs. X., a lady of rather flighty temperament, but who had enjoyed good health until within two years of her first coming under my observation, in December, 1881. During the period mentioned she had suffered from intense weakness and all sorts of anomalous complaints; in short, her condition seemed composed of equal parts of hysteria and debility, and her life had become a burden to her family as well as herself. She had been assiduously treated by a regular physician during the first eighteen months, and during the six months preceding my first visit had been trying the "faith cure," so called, which in her case seems to have consisted in hiring a female of unprepossessing exterior and exaggerated dignity of manner to stare at her steadily for an hour or two every day. I was summoned to advise regarding an acute rheumatic affection which had recently appeared. Her other symptoms, with the mysterious nature of which she was fully impressed, she preferred to have remain under the supervision of the exponent of the "faith cure." Salicylate of soda very soon relieved her rheumatism, and I ventured to suggest that it would be well to have the drainage inspected. To be brief, this was found to be decidedly bad, and the mason and plumber soon brought about the disappearance of the nervous prostration and the dismissal of the exponent of faith.

This case has led me to wonder whether oil of peppermint might not prove indirectly the means of relieving some few of the cases of neurasthenia, with the details of which our ears are constantly filled by sympathetic friends of the sufferers.

The point which I have tried to establish is one which is often hinted at, but not pressed so strongly as I think it deserves to be. When we are called to a case of typhoid or diphtheria we at once order an inspection of the drainage and plumbing, and are seldom disappointed in finding defects; but I am convinced that we ought also to do this in many other cases of diseases which are as yet merely suspected of being infectious, and in some to which no suspicion is attached. Sewer-gas poison seems to seek out the patient's weak spot, and often brings discredit upon the physician, whose inability to relieve his patient is due to his failure to appreciate its unlimited powers of mischief.

JEWISH HYGIENE.

From an address delivered before the last meeting of the American Medical Association by Dr. Carl H. Von Klein, of Dayton, Ohio, we extract the following:

In washing the hands, they are not only instructed to do this, but they are told in what manner: for instance, they are not to wash their hands by dipping them in a vessel, but the water must be poured upon them; they must pour with the right hand upon the left, and with the left on the right, etc., three times; after this they wash their face and rinse their mouth, drying the hands and face with a towel. This must be done as soon as they arise from the bed—even in the daytime. They must not touch any portion of the body before this is done; also before and after each meal, after each evacuation or urination, or the touching of dead bodies or anything unclean. In districts of Orthodox Jews, they have public baths which are used every morning before breakfast by each individual; these are termed *Bait Tbilah*, a house of baptism. This certainly is a very notable endeavor to prevent disease.

It lays down sanitary regulations for what they must eat and drink. The diet is so regulated that one article of food will not interested with another in digestion; for instance, after eating meat they are to wait three hours before milk or its substances dare be used, as the milk is liable to coagulate and irritate the stomach; even vessels in which meats are prepared are prohibited to be used for milky substances, or *vice versa*. This is done for the purpose of strenthening the commands so that they will not allow themselves to consume meat and milk at the same time. They are also prohibited from eating *chait roet*, wild beasts that do not chew the cud, or have the hoof parted, or the species of a bear, lion, tiger, etc., as such live almost exclusively upon animal food. This is reasonable, as they are liable to be infected by morbid poisons from the consumption of dead animals that might have died from hydrophobia or other raging diseases, such as are sometimes found among dogs, cats, rabbits, foxes, wolves, etc.; for whatever disease originates spontaneously in those animals is subject to be transmitted from one to the other; they are therefore dangerous as diet. Even *æphet roet*, wild fowls of the species of the crow, eagle, ostrich, owl, stork, bat, etc., are prohibited, as they consume dead animals.

The meat that the Jews consume from the beast or the fowl must be killed in a certain way, and with a certain instrument, not according to the vulgar custom by striking on the head, by a rude knife, or in a coarse and violent way that would mangle or lacerate the body, which might produce instant inflammation and probably, blood poison, thus making it unclean and unfit for any body to consume.

The killing of the beast as well as the fowl must be by bleeding through the jugular vein. Prior to the killing the animal must be well rested, and its respiration normal. There must be no broken limbs; their lungs must be blown up to the trachea, and if it does not expand it is soaked in water twenty-four hours, when if it does not expand, the animal is unclean.

The veins and arteries must be dissected from the animal; this is done for no other purpose but to assertain whether they are deep-seated abscesses or not, (such abscesses being generally found about the arteries and veins) that would make the animal unclean. The blood of all animals is prohibited as the consumption thereof is dangerous to human life, as all animals are subjected more or less to scrofula or other blood diseases. According to *Drs. Buchner, Kerner, Dunn, Horn, Shuman, and others, poison has developed in saugages made of blood, and to which they have given the name of Allantotoxicum.

Therefore the Jews do not eat meat, either of the beast or fowl, unless prior to eating it has been well soaked and salted. Their mode of preparing is first to soak it half an hour; then it is well rinsed off with clean water, and salted on both sides, placed upon a board slanting, there to remain from twenty to thirty minutes; then again it must be rinsed three times before its use is proper. The prohibition of the use of *chazir*, swine, for food among the Jews is unnecessary to dwell upon, as its effects are but too well known to the layman as well as to the physician. Not only from the danger of trichinæ, but of all other diseases that the hog is inherent to. The hazard from the use thereof and its importation have of late years become national issues in all civilized governments. It should not only be an issue where it is to come from, but its use should be entirely eradicated. Mountains would sink down from the dead caused by the use of this miserable brute. Fish without scales and fins, *dagim balæ snapir wacashcashet*, are also prohibited among the Jews. This stands to reason, as frightful poisons are found in many kinds of fish, not to say that all fish without scales and fins are poisonous, but all poisonous fish are without scales, and therefore they must be dreaded. Naturalists have declared that fish live upon their kind, that is to say, fish without scales live only upon such as have no scales, etc., so they are liable to be poisoned from others.

All *sharatzim*, creeping things, or

---

*Christison on Poisons.

reptiles, or food containing the same, is strongly prohibited, and the use thereof is considered a great crime by the Jew.

Water, vinegar, and other liquids suspected of foreign bodies, must be strained through a cloth. All vegetables subject to vermin, such as parsley, caraway, lettuce, green onions, peas, mushrooms, berries, cherries, and all vegetables whatsoever, must be picked and examined leaf by leaf, kernel by kernel, and grain by grain.

All fruits, such as apples, pears, cherries, citron, apricots, peaches, oranges, lemons, nuts, etc., that are decayed or mouldy, the use of is prohibited; the seeds thereof are always considered as unfit for use. By this it can be seen the ancients have already feared the germ of disease.

All wines such as *yayin mesech*, drugged wines, are interdicted, as such wines might influence or propagate gout or cause other afflictions.

Even the manner in which food should be cooked and prepared is laid down; for example, the Talmud asserts that an egg cooked in sand, as is done in hot climates, or laid beside a hot kettle, or wrapped in towels, is not proper food to be consumed. This may appear to us as senseless, but nevertheless it stands to reason that an egg cooked in the above-described manner may become partly hatched. By this it can be seen that hatching eggs by artificial temperature is not entirely a modern invention.

One, and above all, of the hygienic laws of the Jews, is the separation of women during their menstrual period, *halchot niddah*, *the laws of menstruation.* It is the duty of every husband at least two or three days prior to the expectation of that period, to separate from his wife—not only from the bed, but even the chamber they occupy if possible; or if any spots be visible upon her clothes, or she should inform him of it, he should at once sever from her, and they must remain apart during all the period of her sickness and until six days thereafter, and during that time they are not allowed to eat out of one vessel, and it is advisable not to dine at the same table, nor in any way play or joke with each other. This last to prevent the awakening of passion. In six days after the period has ceased, she must test herself with a clean white cloth; if no red spots appear, she must then go *mikvah*, to the pool, or *tabilah*, bathing. Bath-houses for that purpose are generally erected by Jewish congregations, but the wealthy people sometimes have them erected in their residences. The bathing must be done by immersing, so that every hair on top of her head is covered with water; her legs and arms must be spread in order to allow the water to surround all parts of the body.

The same laws as the above are applied to newly-married women: After the first intercourse, *tashmish*, they must make the separation and go through the same *modus operandi* as a menstruant. This to allow healing.

They are also instructed how to visit the sick, *bakur cholim*, whom they shall visit, and in what diseases. Not only that, but even the clothes they wear are regulated, how they should be made and of what fabrics. The cloth must not be a mixture *shatnez*, of linen and wool; this may appear very frivolous to us, but I say there are sanitary measures even in this, as these two textures counteract each other, wool retains its temperature, is a non-conductor of heat and keeps the body warm, while linen is a conductor of heat and cools the body. The custom of burying their dead in linen, is done for no other purpose but to prevent infection, as wool is a retainer of contagions and infectious matter. Pasteur's experiments are but too fresh in our minds. I do not know whether he attributes the contagion of the sheep to the animal body itself, or to the wool. I can not conceive that an animal interred for many years could still contain contagion, as the body would be entirely decomposed. But I do believe the wool might retain its infection for hundreds of years, especially if buried in dry ground.

In accordance with the above proofs it can be seen, as heretofore stated, that the laws of morals and health were with the Jews from their earliest history. And those who are acquainted with the Talmud, which is based upon the fundamental principles of the Bible, know that there is not another religious sect or creed in the universe, with the exception of the Jews and the Mohammedans, who have in their theology hygiene and diet. It is an established fact that the Koran* is taken from the Talmud, or the Mohammedans would not have it.

◆

CEMETERIES AND WATER-SUPPLY OF PANAMA.

The *Boston Med. and Sur. Jour.* says: The sanitary condition of such a city as Panama, situated as it is upon one of the grand natural highways of the world's commerce, should be at all times a matter of more than local concern and importance; but its bearing upon health and disease in other countries becomes much more intimate with the prosecution of the work upon the inter-oceanic canal and the employment upon the isthmus of large numbers of laborers. It is well known that Panama itself has a very trying climate and is a very dirty city. The picturesque impression received when approaching by water is rudely dispelled upon entering the streets. It will probably be long before the unwholesome operations of nature and custom are antagonized by public conscience awakened to hygenic laws. There are, however, two conspicuous and correlated sources of the propagation and dissemination of diseases at Panama which are as patent and amenable to correction as they are loathsome—we mean the cemeteries and the water-supply. The present conditions and dangers of these have been described before in these columns in plain language, and we reproduce the following paragraph from a letter by Dr. Heffenger, written in March, 1882, from Panama, and published in *Journal* of April 20th of that year:

"One who has not traveled through Spanish America can form no idea of the happy-go-lucky, indifferent, and general slip-shod state of government. Records are seldom kept, and when they are, cannot be relied upon. After vainly seeking mortuary statistics from physicians and public officials, I paid a visit to the various cemeteries, and by overhauling burial books and questioning the keepers, ascertained that the Catholic (native) interments amount to one hundred monthly, and the foreign to ten, giving an annual death-rate of of eighty-eight per one thousand. Of these deaths at least one-half are due to malarial (yellow?) fevers, one-fourth to small-pox, and the remainder to pulmonary and intestinal diseases, syphilis, accidents, etc., etc. I carefully inspected the cemeteries, and cannot pass on without remarking upon the largest one, the immediate property of the bishop. It was built by the Spanish government nearly two hundred years ago upon a boggy piece of land, a mile to the westward of the city. It consists of three hundred and sixty-five niches arranged in three tiers, forming a hollow square. Only the wealthy can indulge in this ultimate luxury, and upon the demise of one of these favored sons of fortune the body is deposited in one of these niches, sealed up by a suitably engraved tablet, to remain so long as cadaveric rent is paid to the church; but let the defunct's relatives fail to satisfy its rapacious demand, and soon the remains in its coffin is tossed into the swamp, just to the rear of the cemetery, where at all times may be seen the unsightly remnant of ancient and recent dead, old Spanish hidalgos, proud doñas, fair señoritas, and new-born babes lying in a promiscuous heap of putrescence ten feet high, their white, staring, tongueless skulls mutely protesting against such barbaric desecration of the dead. My nerves are well-tempered, but I confess this sight filled me with uncontrollable disgust and repugnance. Such a constant source of disease germination and dissemination within a mile of the city, of course, must contribute greatly to its unhealthfulness. Will the new health authorities dare interfere with this right of the church? I think not."

---

*Geiger, Was hat Mahommed aus dem Judenthum genommen.

The same story is told, though more at length, in a let er to the *Panama Star and Herald*, April 5, 1884, from Dr. Wolfredhelson, late member of the Panama Board of Health. The statements of the letter are editorially indorsed, and show plainly enough that the conditions portrayed are no better, if not worse, than when our correspondent wrote, and verify his prediction that the old church would prove too strong for the young board of health. While the Jewish, the Chinese, and the "foreign" cemeteries are in excellent order, and offer nothing for comment or censure, the two native cemeteries—that owned by the bishop and rented in niches to the rich, and that used for general burial of the poor—offer nothing for commendation, and offend all the senses. In regard to the general cemetery it is simply necessary to state that it covers only three-fourths of an acre of ground for an increasing population of 20,000 people, and that it is dug over at least once every year, to give an idea of the centre of disease which it must be.

The condition of the church cemetery is even worse than described by our correspondent, for in September, 1882, an earthquake loosened the walls, and cracked many of the *bovedas* or niches, which in the climate of Panama are veritable ovens filled with putrescent humanity—as long as rents are paid. But the poisonous influences of these two cemeteries are not confined to the air; within a few hundred feet of each of them are wells from which water is drawn and sold for drinking purposes through the city, and from which washerwomen draw their supplies for cleansing and infecting the soiled linen of the inhabitants.

The correspondents of the *Star and Herald* may well exclaim: "This whole isthmus wants sanitary reform, at once, to make it a fitting place for human beings to live on, and to prepare it for the great future that lies before it. Let us hope that some plan of combined wisdom and hygiene will bring about such an ending. Humanity and science demand it."

◆

THE people of the United States are rapidly awakening to the value of Hygiene.

HYGIENE IN RELATION TO THE PRIVATE FAMILY.

Before the last meeting of the Medical Society of Virginia, Dr. Robert I. Hicks read a paper on this subject.

He began by showing the important relations existing between individual sanitation and the public health. He briefly described the investigations of Pasteur, Koch, and Devaine, in connection with the germ theory, explaining the microbes, bacilli, vibrios, and spores found by these observers in different forms of disease, and warned his hearers not to be too ready of belief as to these micro-organisms producing disease, as they may be simply accompanying the disorders in question. After this question is fairly settled, there yet remains the most important thing to be done, *i. e.*, how to best destroy them. He enumerated the different hiding-places of these germs, and showed that by destroying the conditions that make and support them we can in that way do best in practical hygiene. He said that while these agents do exist, and their existence is as yet unavoidable, it is a further fact that we are responsible for them to a much greater extent than we are willing to admit. Many are chargeable to ignorance and recklessness. He showed how some of the preventible diseases are produced simply from people not having a knowledge of the primitive points of practical hygiene. Public legislation, while in every way desirable, can do little else than establish general quarantine laws against the great plagues, but, except in a general way, it cannot enter into the private house, it cannot reform the domestic habits, it cannot enforce purity in a private well, and as these things involve the life and health of the family, they must be attended to from within. As nations are but aggregations of individuals, as is the individual so is the nation. Toulon and Marseilles are now paying the terrible penalty of individual uncleanliness.

The happiness, longevity, and often the success itself of man, is largely dependent upon an intelligent recognition of the laws of health. Misery, disease, and failure in life are the penalties paid for their violation. Penalties extending beyond one generation are frequently the result of personal neglect. Our present knowledge of pathology shows us that diseases are often perverted life-processes, and are therefore more easily prevented than stamped out when once begun.

Dr. Hicks showed a firm belief in the preventibility of consumption, and did not think it hereditary to anything like the commonly accepted extent. Out of one hundred cases in New York only twenty-six per cent. were hereditary, the remainder (seventy-four per cent.) are charged to damp air, insufficient food, poverty, and filth. He wished to impress upon his hearers the fact that tubercle is not a new formation dependent upon hereditary taint, but is merely an alteration of neglect of trivial complaints in connection with a disregard of ordinary sanitation. He illustrated these and other points by cases drawn from his private practice. He classed Bright's disease, dyspepsia, gout, etc., as preventible diseases, due, frequently to personal habits. No organ can continue sound and be the constant carrier of morbid products. The remedy for this class of complaints consists in change of habits, moderation, etc. The subject of the location of the family house and its bearing upon the health of its inmates was taken up and carefully discussed, the point being also illustrated by cases under his own observation. He pronounced pure air antiseptic, showing, by well-chosen illustrations, its influence on animal life. He thought that from 1,200 to 2,000 cubic feet of air must pass through a room every two or three hours to make it healthy for one individual. The addition of one other person impairs its purity and renders it unfit for use. It becomes not only unhealthy, but unclean. He took up the subject of ventilation, and gave some practical hints regarding it. He called the attention of his hearers to the fact that dry heat was the only perfect disinfectant, extreme cold having failed in that direction in many instances. The importance of light, both to the well and sick, was touched upon, and practical examples were given from his own observation. He then showed, from cases in his own practice, how typhoid fever, diphtheria, and some other diseases were often caused by the presence of old rubbish, bad water, and filth. He believed that certainly in decaying animal matter, and probably also in decaying vegetable matter, are found the germs that produce zymotic diseases. The thorough destruction of these matters insures the destruction of the germs. As one person, by bad personal habits, may not only produce disease in himself but pass it on to others, the innocent suffering with the guilty, each individual should feel the great responsibility resting upon himself. He concluded by showing the economical side of the sanitary question, proving how much could be saved by personal attention to the first principles of hygiene, and demanded a higher grade of education for the children of to-day in matters pertaining to individual and home sanitation.

A FACTOR IN THE PREVENTION OF DISEASE.

The *Medical News* very wisely says that in order to effect a wise and efficient application of the principles of preventive medicine in the household, a knowledge of these principles and a prompt co-operation with the health officers are absolutely indispensable. How best to secure these important objects is a perplexing question in sanitary administration. The health laws and regulations may be ever so carefully prepared, and their official execution wisely attempted, but unless their intent and meaning are clearly comprehended and their provisions faithfully and intelligently carried out by the individual, much, and a very important part, of the intended benefits will be rendered nugatory.

In no particular is this experience more deplorably realized than in the case of the domestic management of contagious and infectious diseases. Whilst presumedly under the direction of the health officer, it is practically controlled by the authority of the household, and the results depend mainly on the manner in which this is exercised. It is impossible for the health officer, or his agents, to exercise a constant supervision over the important details of the management of these cases. He can direct and instruct, and, by occasional visits, infer approximately as to the measure of completeness with which his advice has been carried out; but he will fail to secure the desired results, unless there be an intelligent coöperation, which is based upon a clear comprehension of what is required to be done, and the reasons therefor.

Ignorance in matters relating to sickness and sanitation is the great barrier to success in the use of the means for the prevention of disease. To overcome this serious obstacle, is the aim of all enlightened sanitary government. Effort has been made to disseminate knowledge by the circulation of tracts containing specific information on sanitary topics, by discussions on hygiene in the public press and in the lecture hall, and by the publication of health primers. These means are value, and their use has been of great assistance in dealing with the practical questions of domestic sanitation. But there is still need of a general and more thorough system of instruction in the fundamental principles of hygiene, designed to reach the youth of the community.

The instruction of the young must be considered as an important factor in the prevention of disease. It should be compulsory, and form part of the course of study of the elder children in our schools. With most persons it is not an easy nor a pleasant task to acquire technical lessons in any study in after-life. "It is hard to learn while the struggle for daily bread is going on." Childhood is the impressible period of life; the lessons learned in youth are not apt to be forgotten. Advantage should, therefore, be taken of this circumstance in making the coming generation wiser than their parents, and better fitted to take care of their health. A recent English writer plainly states the whole case when he says: "The elder children in all public schools should be regularly taught a course of simple lessons on the prominent symptoms of infectious diseases, the dangers to be expected, and how to avoid them; the ways in which infection is spread, and how to prevent it; the common defects in house sanitation, and how to detect them; the pollution of air, food, and water, and the dangers of damp and overcrowding on the constitution. In short, a simple course of lessons on health, and how to keep it."

Were this advice reduced to practice, much of the ignorance, opposition and reckless behavior encountered in the management of communicable diseases, particularly in the houses of the poor, and the serious embarrassment and discomfiture of the health officials in exercising their executive functions, would be removed, while the sanitary government of the household, an important agency in maintaining the public health, would be very greatly promoted.

THE EFFECTS OF BICYCLE RIDING ON THE YOUNG.

In reproducing this article from the *Lancet*, it is but just to premise that the article in question has called forth much correspondence, in the course of which, while many physicians support the views therein expressed by Dr. S. A. K. Strahan, there are also many, who deny that this form of exercise has any injurious influence.

"Cycling is doubtless a very healthy and pleasant mode of exercise when used in moderation, but now that tens of thousands of our boys ride bicycles daily, and 'get up records' of thousands of miles in the year, it may not be out of place to point out some alarming evils which are likely to arise from this abuse of an otherwise healthy pastime. Some time ago it was pointed out that obscure nervous complaints would probably be developed by the continual jarring—the succession of shocks conveyed to the spinal column in bicycle riding; and this, I believe, has proved correct in many instances, notwithstanding 'Arab springs,' and 'rubber-cushioned' machines. But it is to something much more serious than this that I would now call attention;

it is to the amount of pressure brought to bear upon the perineum in growing boys, affecting directly the prostate, the muscles of the bulb, &c., and indirectly the whole generative system.

"The bicycle saddle is now reduced to the smallest possible limit. It is just wide enough at its posterior part to cover the ischial tuberosities, and it tapers off quickly to a long, narrow horn in front, upon which the perineum rests. Let us consider the position of the body and limbs when the rider is mounted, and we can then appreciate the amount of body weight which must be thrown upon the perineum. In bicycle riding the legs are, when extended, vertical, and the pelvis is flexed upon the thighs or rolled forward. This rolling forward of the pelvis is slight in easy riding, and very marked in fast riding and hill climbing. Now, when the body and pelvis are bent forward, the ischial tuberosities are raised from the saddle, and the whole weight of the body, save what is transmitted to the pedal by the then extending leg, is thrown upon the perineum. It is not much of the body's weight that is conveyed to the pedals. In easy riding on the lever the weight of the limb from the hip down is sufficient to move the machine, and in hard riding the extra pressure is gained not so much by throwing the body's weight upon the pedals as by pulling upward on the handle-bar, and so further increasing the pressure of the body upon the saddle. But even admitting that the pressure upon the perineum be only a few pounds, I hold that it must be injurious in the extreme, for were the pressure *nil* when riding upon a perfectly plane surface, it must at times be considerable when the machine is ridden over an unequal surface, such as is afforded by our best country roads. Let those who talk of 'the beautiful gliding motion of the bicycle' try to play a game of billiards after a ride of twenty miles, and then explain where all their 'shakiness' comes from, if their motion has been that of the skater. Now, this pressure on the perineum, whether it be continuous and increased at every jolt, or whether it be made up of jolts alone and be *nil* in the almost imperceptible and irregular intervals, must be injurious, more especially to growing boys. It must cause irritation and congestion of the prostate and surrounding parts, tend to exhaust and atrophy the delicate muscles of the perineum, and also call attention to the organs of generation, and so lead to a great increase in masturbation in the timid, to early sexual indulgence in the more venturous, and ultimately to early impotence in both.

"We all know that among the Tartars horse-riding causes complete impotence in many of their strongest and most daring men, with wasting of the testes, dropping of the beard, and change in the pitch of the voice; and we also know that the introduction of the horse into the western world had quite as much or more to do with the extermination of the red man than had the almost simultaneous introduction of the European. In a southern tribe of Indians—that is, a horse-riding tribe—it is a marvel to find a squaw with more than two or three children, though they—both men and women—marry young. Impotence is said to be common amongst them at thirty. The 'disease of the Scythians' and its causes are sufficiently notorious.

"If, then, these sad results are the outcome of immoderate equitation where there are an extensive seat and a stable foot-rest, and where the adductor muscles of the thighs are used, what are we to look for, where our boys of ten and upwards spend the greater part of their own time riding bicycles, and get over thousands of miles in the year, perched upon a saddle no bigger than the hand, which conveys every jolt of the machine to the body; where the jolts are ten times more numerous than those experienced by the equestrian, and, occurring without any approach to rhythm, are conveyed unexpectedly to the person?

"Some time ago Dr. B. W. Richardson when advocating cycling as a healthy exercise said, if I remember rightly, 'that what made cycling so healthful an exercise was that in it you enjoy all the muscular motion experienced in walking, with this advantage, that the bodily weight was taken off the feet and legs.' This, of course, would be an advantage if the bodily weight were better bestowed than it naturally is upon the feet; but as it is on the bicycle, the transference of weight from the feet to the perineum cannot but be for the worse.

"It must be understood that what is said in this article applies particularly to growing boys, who generally straddle the largest machine their length of leg permits, and so greatly increase the liability to perineal pressure. What cycling—for the saddle with the long up-turned horn, is now almost universally used for the tricycle too—will do towards the advance of those prostatic affections which so often render the closing years of life miserable, time alone will tell."

LAYING DOWN A RULE OF LIFE.

To the intelligent thinker, who is acquainted with the various branches that go to make up the study of "man," including the all-important subject of Hygiene, the effort to lay down any absolute rules of life that will be universally applicable to mankind is so utterly ridiculous, that we gladly reproduce from the *Lancet* the following wise words, with the sentiments of which we are entirely in accord.

The *St. James's Gazette* observes, "It really seems sometimes as if hygienic science were all wrong, and as if late hours, much hard work done under the gaslight, and the smallest possible amount of fresh air were the way to be healthy, if not wealthy and wise. Who lives under more (theoretically) unhealthy conditions than the members of Parliament or the leading counsel learned in the law? But our statesmen are in a green old age at seventy-five, and barristers are quite boyish at sixty; so, too, are actors and actresses." Our contemporary then exclaims, "Sanitary guides should tell us the meaning of these things." So far as we may presume to respond to this appeal, we must be allowed to point out first that there is a fallacy in the inference that because Members of Parliament, and busycounsel, and perhaps actors and actresses, live on in spite of the adverse influences of surroundings which are held to be injurious to health, therefore the surroundings of their lives cannot be as injurious as they are supposed to be. One of the earliest exploits in the applied science of statistics as brought to bear upon sanitary questions was the drawing of an inference that because the London night-men, who slept as they might by day, and spent the hours of darkness in emptying cesspools, were able, as a class, to claim a very low rate of mortality, their mode of life and the work in which they were engaged could not be unhealthy. A good deal of excitement, we remember, was produced by this deliverance some forty years ago. It was forgotten that another point of view was possible, and that, in truth, none but the inured could live at all under such conditions! That since excogitated law, the "survival of the fittest," explains the result. So it is with members of Parliament, busy counsel, and actors and actresses. The weakly and sensitive retire or die, or have the wit not to enter into a way of life which must obviously prove unsuitable. At the same time we are quite prepared to meet our contemporary halfway in his argument, though the inference with which he opens the debate is obviously faulty. We *do* think that a great deal of unpractical nonsense is talked and written on the conditions of health, and we are quite sensible of the fact that regimen and dieting may be pushed too far. It is true that "what is one man's meat is another man's poison." Practitioners and those who set themselves up as apostles of sanitary science are too prone to measure other people's corn by their own bushel. For example, a physician or surgeon may himself have been a too free liver—it is easier to preach than to practice—and he may have become a total abstainer just in the nick of time, or with great advantage to his health; but this is certainly no reason why he should spend the remainder of his life in trying to persuade others that total abstinence is good or necessary for *them* also. Again, a medical man may have a miserably weak digestive faculty, and need to avoid certain dishes which other folk can take, not only with impunity, but with benefit; but that is no reason why he should go about abusing and interdicting the things that disagree with him, while they agree perfectly well with the majority of mankind. By pushing dieting to the verge of starvation, we are simply pretending to cure, not curing; we impose on ourselves and those who confide in our practice. In principle, the same is true of artificial modes of life. The matter is one which deserves professional attention.

PUBLIC LAUNDRIES AND BATHS.

The *Med. News* says: The establishment of public laundries and baths for the accommodation of the poor is an important means of promoting the public health, and, therefore, deserves to be encouraged, if not supported, by the government. The housing of the poor is not the serious question here that it is in most European cities. Comfortable homes are provided in great numbers, which have the necessary conveniences for cleanliness and domestic work, but they are not within the reach of large numbers of the population, who have to content themselves with accommodations of the most inferior kind. One or two rooms must suffice for a family. The washing of clothes, cooking, and all other domestic work, is performed in the apartments used for living and sleeping. Under the circumstances home comforts are banished, and health—the main dependence—is jeopardized. For such people the public laundry and bath would be a great boon. The disagreeable operations of washing and drying clothes could be transferred from the dwelling and sleeping apartments to an establishment fitted up with every convenience to facilitate the work, to which the wife could have access a certain number of hours upon the payment of a small fee. The moral effect of extending such a privilege to the poor would be very great.

The public bath system admits of a still wider field of application. Wherever a swimming-bath has been established, its extensive patronage proves the need of such accommodations. Swimming-baths should be established not only as promoters of cleanliness, but as excellent means of healthy exercise. It would be well if these aids to health could be continued the entire year, but when this is impracticable they should be substituted by private baths, which should be placed within reach of the poor by charging only a small fee. The Badeanstalt, established this summer in Cologne, one of the most complete and largest on the continent of Europe, is an illustration in point. It contains a workman's swimming-bath, the charge for a bath being not over three cents. The supply of water is continuous. Men following dirty employment are compelled to perform a preliminary ablution with soap.

The public baths in Germany are probably more elaborate and complete than anywhere else. In all the principal towns these conveniences have been opened or are in course of erection. The same may be said of England. Public baths are now being built in Dublin at a cost of $25,000. France is not behind her neighbors in providing for the wants of the people in this respect. Swimming-baths are found in towns, small and large, standing on the banks of a river, and their use is in some cases gratuitous, while in others a small charge is made. In our cities the same liberal provision has not been made for the wants of the people. It is not needed in the case of persons in comfortable circumstances, as they can afford to have and do have private bathrooms in their homes. But the poor suffer in their health from being deprived of the advantages of the bath, and for them provision should be liberally made.

The cost of the erection of these establishments need not be great, and that of their maintenance would be trifling compared with the benefits bestowed. The obligation of the municipality to incur such an expense is derived from the duty to use every reasonable means for the promotion of the health of the people. What has already been done in this matter has been very successful, and encourages renewed efforts to extend the system to its widest and most useful application.

◆

TO TEST THE PURITY OF THE AIR IN A ROOM.

It is well known that when the atmosphere of a room contains more than eight parts of carbonic acid in 10,000, the air is unhealthy. When one has been sitting for some time in a room, the air may be very much contaminated, and yet it may not be appreciable to the senses, owing to the fact that "*custom has bred* tolerance." It is, therefore, important that every one should be acquainted with Dr. Angus Smith's simple method of testing the purity of the atmosphere in a room. Fill a pint bottle with pure rain water, take into the room to be tested and pour out the water. The bottle will then fill with the air in the room. Pour into the bottle half an ounce of clear lime-water and shake thoroughly. If it remains perfectly transparent, with no trace of milkiness or turbidity, it does not contain more than eight parts of carbonic acid in 10,000, and the air in the room is healthful.

◆

The Italian people are beginning to realize the value of Hygiene.

The Annals of Hygiene.

VOL. I. PHILADELPHIA, JULY 1, 1886. No. 7.

Communications.

HEREDITY AND OTHER PECULIARITIES AFFECTING HEALTH AND LONGEVITY.

BY C. W. CHANCELLOR, M. D.,*
Secretary of the Maryland State Board of Health.

Mr. President and Gentlemen of the Convention:

If health is such a blessing—the very source of all pleasure—it may be worth the pains to discover the regions where it grows, the springs that feed it, the costoms and methods by which it is best cultivated and preserved.

Every aged person is apt to think his or her own peculiar habits the cause of long life; for example, a certain lady who lived to be 90 years of age, ascribed her preservation to a practice she had of shutting herself up in the house from the 1st of October until the 1st of April; while a pauper, who lived to be 115 years old, ascribed her great age to her absolute indifference to all weathers. We find one old gentleman at 96 years of age ascribing his robust health and green old age to the fact that he limited himself to one simple dish at dinner, and had all his life eschewed intoxicating liquors; while his older brother, on "the shady side" of one hundred, but still enjoying perfect health, declares that he is in the habit of making his dinner on roast-pig and cracklings, fat bacon and cabbage, baked beans and cucumbers, currant tarts and cheese, with four pints of small beer and a pint of "Jersey lightning" as his daily beverage.

There is no circumstance, perhaps, which seems more surely to promise health and long life to any individual, than his being descended from healthy and long lived ancestors. This doctrine is of great antiquity; for both Hippocrates and the elder Pliny have remarked that, as a general rule, healthy parents will have healthy children. It is a well established fact, moreover, that children have a predisposition to suffer from the maladies of their parents; and, on the same principle, they are entitled to enjoy the perfections of those to whom they owe their birth.

There are some melancholy instances where the vices and diseases of the parents have become the bane of their posterity; for there can be no doubt that parents not only communicate their peculiarities to their children, but also a predisposition to certain diseases. Huxley states that "no structural modification is so slight, and no functional peculiarity is so insignificant in either parent, that it may not make its appearance in the offspring."*

Darwin is still more explicit on this point. He says: "Ovules and the male

---

*Read before the State Sanitary Convention held in Philadelphia, May 12, 13, and 14.

*Anatomy of Invertebrate Animals, p. 30.

element, before they become united, have, like buds, an independent existence. *Both have* the power of transmitting *every single character* possessed by the parent form. We see this clearly when hybrids are paired *inter se*, for the characters of either grandparent then reappear perfectly or by segments, in the progeny." *

Some authors hold that the offspring is actually a dual personality, made up of a complete organization or individuality inherited from the father, and another equally complete inherited from the mother. Thus, says Huxley: "It is conceivable, and, indeed, *probable*, that every part of the adult contains molecules derived from the male and female parents; and that, regarded as a mass of molecules, the entire organism may be compared to a web, of which the warp is derived from the female and the woof from the male. And each of these may constitute an individuality in the same sense, as the whole organism is one individual, although the matter of the organism has been continually changing." †

Many suppose that the hereditary predisposition may be obliterated by suitable measures; that whatever promotes the general health of the individual will tend to remove any weakness, or facility of derangement, depending on original corporeal structure, This doctrine is perhaps well founded, if we admit the theory of "variations," which is a feature in heredity equal in importance with that of transmission from parent to child.

Prof. Brooks says: "We know that each characteristic has been gradually acquired through a long series of modifications; that all the wonderful adaptations which fit animals to their surroundings, and meet their peculiar needs, have been evolved, step by step, by the natural selection of the fittest congenital *variations.* Each race characteristic has at one time been a new variation, and the process of modification is still going on and perfecting the harmony between the structure of each organism and its needs. No theory of heredity has any value unless it explains the way in which new features may become hereditary, continually make their appearance as congenital variations, at the same time that it accounts for the way in which established peculiarities are handed down from generation to generation.

"The problem," continues Professor Brooks, "is two sided; what is now hereditary was at one time variation, and each new variation may soon be hereditary. Heredity and variation are opposite aspects of the same thing, and an explanation must be examined and tested on the one side as well as on the other, before it can be accepted.

"It is plain that as soon as one part has varied in any direction, the harmonious adjustment of related parts will be disturbed, and that they too must vary correspondingly in order to restore the proper tone to the whole."*

Such being the case, it becomes us as sanitarians and physicians, to study this law of variation, which may furnish an explanation of the hidden causes of many diseases, and their connection with hereditary transmission.

It has frequently happened that where an individual has been distinguished for longevity, one or the other of his ancestors has been long lived; but this rule is far from being universal, and we are not to suppose that long-lived parents always secure long life to their offspring. Statistics will serve to show, in a measure, to what extent the rule may be relied upon. The number of individuals, beyond 80 years of age, mentioned in the reports of several London hospitals, as inmates, amounts to no fewer than 598; of these 303 affirmed that they were descended from long-lived ancestors, but the remaining 295 either knew nothing at all about their ancestors, or declared that they had not been remarkable for long life. From this it will appear that old age is in many instances a result of other circumstances, which may be combined with or altogether independent of long life in the parents.

---

*Variations of Animals and Plants. Vol. ii., p. 431.

† See Encyclopedia Britannica, Art. Evolution.

* Law of Heredity, p. 281.

That long-lived parents should have children likely to live long, is not to be wondered at. The same general rule applies to vegetable as to animal life. Although the seed of every tree or plant will produce a tree or plant of the same sort, and possessed of equal beauty and duration, yet at least two points must be attended to: 1st. That the seed must be sound and wholesome; and 2d. That it be deposited in a proper soil.

Though some authorities are inclined to deny the existence of hereditary diseases, they nevertheless acknowledge that a *predisposition* to a particular disease may exist; and daily experience must convince every one of common observation, that there are many maladies which children *inherit* a "predisposition" to from their parents, even where endeavors have not been wanting to check that tendency. Again there are certain diseases, as for example the gout, which will afflict the father, but spare the son, only to reappear in the third generation.

Lord Bacon observes that "the immediate condition of the parents, as well of the father as of the mother, will affect their offspring;" but Sir Thomas Brown, while admitting that a certain *texture of stamina* is favorable to certain forms of disease, rejects the idea of hereditary taints. Other authors believe that the parent must be afflicted with the disease before the child is born, or, at least, that there must have been a previous taint in the constitution of the parent, in order to transmit the disease; thus, if no gouty taint existed in the family, and the parent was not afflicted by the disease *until he had reached forty years of age*, all his children born previous to that period would be exempt from it, whilst all those born afterwards could hardly escape a disposition to the malady.

In all animals much seems to depend upon the healthy state of the mother, in fixing the vital status of the child. It is quite well confirmed by experience, that the state of the child's health and constitution depends much more upon the condition of the mother than on that of the father. Lord Bacon states, as a general proposition, that animals which partake more of the nature of their mother than their father are the longest lived, and he remarks that "among men as among other animals, those who resemble the mothers most are the longest lived."*

It has been asserted that the physical organization or outward shape, at least of a male child, depends more upon the father than upon the mother, but that the talents and structure of the mind are derived from the mother. In regard to the second proposition, it is alleged that a clever woman seldom has children remarkable for mental deficiency, and that the abilities of many families may be traced to one distinguished female who introduced talents into it which have descended, not only to her immediate offspring, but have been transmitted to her remote posterity.

The cases of two of the most distinguished families in England, in point of talent, have been cited in verification of the foregoing theory. The abilities and eloquence of Pitt were believed to have been inherited from his mother, a Miss Innes, of Redhall, in the Highlands of

---

*Hufeland, vol. ii., p. 123.

Scotland, and the talents of the family of Dundas, of Arniston, have also been attributed to the marriage of one of their ancestors with a Miss Sinclair. On the other hand, Darwin, in discussing the statement of certain authors, that the father influences the external characters, and the mother the internal characters, declares emphatically that, "*It is an error to suppose that the male transmits certain characters and the female other characters.*"*

In considering how much the health and stamina of children depend upon the condition of their parents, it may be a question for sanitarians to discuss, "Whether diseased persons should not be prohibited from marrying?" inasmuch as such marriages are likely to produce nothing but disease, deformity, social distress, and political mischief.

Buchan, in the 18th edition of his Domestic Medicine, justly remarks, that "the unhealthiness of parents must be a fruitful source of disease in their children;" and that "it would be as reasonable to expect a rich crop from a barren soil, as that strong and healthy children should be born of parents whose constitutions have been worn out with intemperance or disease."

A delicate female, brought up within doors, and an utter stranger to exercise and open air, who lives, as it were, on tea and other slops, may bring a child into the world, but it is hardly fit to live. If to the delicacy of the mother we add the often irregular life of the father, we shall have further cause to believe that children who die early are in many instances victims to the shattered constitutions of their parents. A course of vice will spoil the best constitution; and when disease is once contracted and riveted in the habit, it is, in a manner, entailed upon posterity.

In regard to the question of perfect birth, as connected with health and longevity, it is only necessary to say that the usual period of gestation is nine calendar months, but there is very commonly a difference of one or two weeks. Hippocrates considered perfect birth so essential to a healthful manhood, that in his book *De Septimesti Partu*, he contends that children born in the seventh month seldom live long; but there are many instances recorded to the contrary. James Donald, an old man who resided near Dumbarton in Scotland, and lived to the age of 100 years, was born, it is said, in the seventh month; and George III, who died in his 82d year, is also reported to have been born in the seventh month. It cannot be denied, however, that a uniform and faultless conformation of the whole body tends to promote health and long life, while an imperfect structure, whether it be the result of accident or hereditary predisposition, affords an easy opportunity for the onset of local diseases, which are often extremely prejudicial to the duration of life.

In some constitutions all diseases are mild and gentle, whilst in others they are violent, and are only cured, if at all, with difficulty. One person is liable to catch any contagious disorder, whilst another may, without hazard, enter houses infected with small-pox or other contagious maladies. Some individuals seem to have inherited a certain bodily and mental disposition to live long and keep well, whilst in others all the advantages combined—as a salubrious climate, a strict adherence to the best rules of diet, a regular course of recreation, exercise, etc.—are not sufficient to insure a long or healthy life.

It is said that the great Boërhaave learned the characteristic signs of perfect health from the Dutch slave dealers, who from long practice necessarily became well acquainted with semiotics or the doctrine of signs and symptoms. The following are the signs which, according to medical authors, denote a good constitution, and when present in the parents prognosticate long life in the progeny.*

---

* Variations of Animals and Plants, Vol. ii, p. 431.

1. A sound stomach and organs of digestion. The stomach has properly been called "*The father of the family*," for if it goes wrong the whole body suffers, and its variations readily become hereditary predispositions.

2. A capacious chest and healthy organs of respiration; breathing being the most necessary of the vital operations. That *phthisis pulmonalis* is transmitted from parent to child is now an admitted fact.

3. A heart not too irritable, the action of which is not increased by every trifling agitation of the mind or action of the body. This variation from a normal condition of the circulatory apparatus may lead to hereditary organic trouble.

4. A good temperament. The best is the sanguine, tempered with a little of the phlegmatic. This produces a serene, cheerful mind, moderate passions, undaunted courage, and that state of mind which is the most fitted for logevity.

5. A strong natural power of restoration and healing; by means of which the losses we daily and hourly sustain, are not only repaired, but well repaired.

6. A uniform and faultless conformation of the whole body. An imperfect structure gives an easy opportunity for the advent of local diseases, which may bring on death.

7. No particular weakness of any part. Even where the organization is apparently good and perfect, there may be a concealed enemy in some organ, which may afterwards destroy the whole body.

8. A medium quality in the texture of the organization, strong and durable, but not too rigid. It is proper to bear in mind, that strong constitutions sometimes do not last so well as the more feeble; for in the first place, the strong are tempted to take less care of their health; and in the second place, they often suffer more from the same disease than those who have less energy to contend with it; the vehemence of the disorder, as in fevers and inflammations, being frequently aggravated by the strength of the patient.

Among the various circumstances which tend to promote health and longevity, independent of attention to the observance of particular rules, there is none of more real importance than the configuration of the body, or the *physique* which the individual receives from nature; for in so delicate a machine as man, any material fault in regard to structure must sooner or later be felt. Plausible arguments, however, are not wanting in favor even of deformity. Mr. William Hay, who was a member of Parliament, and himself deformed, thus defends the shape which nature gave him: "It is natural to imagine, that if the human frame is warped and disproportioned, it will be lessened in regard to strength and activity, and will be rendered less fit for its different functions; consequently that deformed persons are not healthy or long lived. But this is a question best determined by facts; and, in this case, the instances are too few, or unobserved, to draw a general conclusion from them. Besides, health is more in a person's own power than is commonly imagined, and is more the reward of temperance, than the effect of constitution. The celebrated Esop certainly was not young when he died, and might have lived longer, had he not been murdered at Delphi. The Duke of Luxemburg died at 67; the Lord Treasurer Burleigh, at 78; Mr. Pope's father, at 75; and they were all deformed." *

---

*See Finke's Medical Geography, Vol. i., p. 449, also Tissot, Essai sur maladies des Gens du Monde, p. 8.

* See *Dodsley's Fugitive Pieces*, 1765.

As a standard of perfection in the human figure, artists commonly divide the height of the body into ten times the height of the face. They likewise divide the face into three equal parts; the first commences at the springing of the hair on the forehead, and terminates at the root of the nose; the nose is the second division, and the third extends from the nose to the end of the chin. The celebrated artists, Bartolozzi and Cipriani, however, give more grace to their figures by deviating from these proportions, and giving more length to the body, particularly in females.

Medical men, in their view of the form best calculated for health and longevity, deal more in general description than in minute details. According to Hufeland, who has treated more fully than any other medical author upon this part of the subject, the following is the portrait of a man destined for longevity:

"He has a well-proportioned stature, without being too tall. He is rather of the middle size, and somewhat thick set. His complexion not too florid. His hair approaches rather to the fair than the black. His head is not too large. His shoulders are rather round than flat. His neck is not too long; his belly does not project; his hands are large, but not too deeply cleft. He has a broad, arched chest, a strong voice, and prominent veins; his pulse is slow and regular. In general there is a complete harmony in all his parts."†

The celebrated Lavater gives the following as the signs, if not the ingredients of long life: "An elevated forehead, sunken eyes, a large nose, somewhat curved, a soft but not over-lax skin, a character artful, suspicious, covetous and deceitful; obstinacy and emulation are inseparable from it."‡

In connection with this subject, no better account of the law of heredity can be given than that found in an article by Prof. Brooks, of the Johns Hopkins University, published in the *Popular Science Monthly* for June and July, 1879, under the title, "The Condition of Women from a Zoölogical Point of View," wherein the distinguished author alleges that it is universally but never absolutely true, that like produces like. "The offspring," he says, "resembles its parents in all fundamental characteristics. The human child, for instance, resembles its parents in the possession of all the characteristics which distinguish living things from those which are not alive, as well as those which distinguish animals from plants. The chemical, physical, and physiological changes which take place in its body and the histological structure of its tissues are like those of its parents, and its various organs are the same in form and function. * * * It also shares with its parents the features or race characteristics of the particular tribe or race to which they belong. If they are Chinese, Indians, or Negroes, the child belongs to the same race, and manifests all the slight, superficial peculiarities of form, constitution, and characters by which that race is distinguished. Even the individual peculiarities of the parents, intellectual and moral as well as physical, are now known to be hereditary. * * * * The child is like its parents, but not exactly like them. It is not even a compound of characteristics found in one or the other of them, but has individual characteristics of its own; slight variations, which may not have existed in either parent, or in any more remote ancestors. * * * *

"The series of hereditary structures and functions which makes up the life of an organism is constantly being extended by the addition of new features, which, at first mere individual variations, are gradually built into the hereditary life history. In this way newly acquired peculiarities are gradually pushed further and further from what may be called the growing end of the series, by the addition of newer variations above them. It can also be shown that from time to time the peculiarities of the other end of the series, the oldest hereditary features, are crowded out of the life of the organism, and dropped, so that an animal which is high in the scale of evolution does not repeat, in its own development, all of the early steps through which its most remote ancestors have passed."

---

* Buffon, vol. ii, p. 460.

† Hufeland on Animal Life, vol. 1, p. 231.

‡ Hunter's translation of Lavater, vol. iii, p. 169.

Statistics show that nearly one-half of all the children born die under five years of age, and that a majority of these perish from deficiency of stamina, or inherited ailments, most of which are amenable to measures of prevention. It is surprising to what an extent we may rectify the *tendency to debility*, the inception of disease, *even anterior to birth*, when too often the mischief is unwittingly done by the mother, who produces in her offspring future diseases of body, or some degree of physical deterioration. Few mistakes, for example, are more common among women than that of regarding the very natural process of child-bearing as something seriously debilitating or otherwise abnormal, to be counteracted by change in their habits and mode of life, as the indulgence of various fancies and cravings, the consumption of more and richer food than usual, gratifying the appetite for stimulants, etc. These errors conduce directly to "variations" or "hereditary predispositions," which lead to the early dissolution of the offspring, or they foster those very evils which it was intended to avoid.

A scrofulous, consumptive, or otherwise delicate tendency in the child may arise from the occurrence of conception when one or the other, or both parents, are laboring under, or recovering from, weakness or disease; and as certainly may epilepsy or idiocy in the offspring be traced to the intemperance of one parent or both.

Essential benefits may be conferred upon humanity by such reforms as can be silently effected by sanitary associations, having for their golden aim the mitigation of human wretchedness; and what more promising field for those whose merciful mission it is to "go about doing good," than that of inculcating the simple, obvious laws of health, the infringement of which is so often followed by misery, disease, and death? The life of man is not only embellished in its course by the advancement of sanitary science, but it is extended and rendered less doubtful.

As man reaches the plenitude of his physical and social development, the population becomes strong, intelligent and manly; while he remains, as it were, in perpetual infancy, whole generations are swept away without being able to profit by the past, or to bring social economy to perfection.

In his lowest state, man had no pleasures but those of sense, and no wants but those of appetite. In the gradual exaltation of human nature, every art contributes its contingent towards the general supply of his physical and mental perfection. Whatever abstracts the thoughts from sensual gratifications,—whatever tends to improve health and prolong life,—must advance, in some measure, not only our happiness, but the dignity of human nature. We are continually laboring to advance, step by step, through successive gradations of excellence towards perfection, which is dimly seen at a great distance, and which we must always follow, because we never can attain; but the pursuit rewards itself. One truth teaches another, and our store is always increasing, though nature can never be exhausted,

THE ARTIFICIAL FEEDING OF INFANTS.*

BY JOHN M. KEATING, M. D.,

Visiting Obstetrician to the Philadelphia Hospital, and Lecturer on Diseases of Women and Children. Physician to St. Joseph's Hospital. Fellow of the College of Physicians, etc., etc.

The honor that was conferred upon me by the request to present a paper to this meeting, carried with it a responsibility which I freely confess, the more I look into the subject, by no means lessens. The large audience which I address, gathered as they are from all portions of the Union, have come here to carry away to their constituents certain facts which I have endeavored to deduct from the mass of published material, and which are to be used for no less a purpose than the attempt at saving life.

Were my hearers alone members of the medical profession, it would not be necessary for me to explain the reason why so much stress is laid upon a subject which appears so simple, nor would I be required to throw the veil over the various apparent discrepancies and contradictory statements that pervade the literature of my subject. They know full well that thousands yearly die in early infancy from disease which is the offshoot of ignorance and carelessness.

They also know that science is not progressive by rapid strides in lines that are straight, but that its true progress is slow, tentative; its path marked by discussions; ofttimes it seems to retrograde, and then, discovering a new way, it abandons the old one, but in the long run reaches the goal.

Men's ambition for fame and desire for riches seem for a time to cover the track of progressive science, to anticipate it, to lead it on, but the spark burns brightly beneath.

To my non-medical hearers I will say that, in answer to your question, Why is it that so many apparent differences exist regarding the bringing up of infants? I reply that it is not because science has ceased to advance in this direction, but because we are situated in its pathway, and not at its goal.

We are learning from the chemist the composition of human milk—of nature's food; from the physiologist the composition of the secretions; from the anatomist the laws of growth and development of the human body.

These studies are intricate; they require frequent corrections, and, as a consequence, the sum total is affected by discrepancies existing in the figures of the component parts.

I believe that it is better for us to-day to avoid questions that are still *sub judice*, and confine ourselves as closely as possible to such facts as will warrant our basing some conclusions upon them.

Let me for a moment give you a few statistics to show you the importance of our subject. We are entering the season of the year during which intestinal disorders among infants give us a mortality that is appalling. I believe that if you will carefully study the matter which I will present to you, and disseminate these suggestions, which are based not alone upon my experience, but upon that of others, you will be benefactors—more than that, you will save life.

The tables I present, compiled from the census reports of 1880, prove several interesting points. One is the enormous increase of mortality during the heated season; the other, the fact that the much dreaded *second* summer has a low comparative death rate. Thus, in New York and Pennsylvania for 1880, 35,377 children died within the *first* year (inclusive), and but 6031 between the first and second years, and 4139 between the second and third years.

---

* Read before the State Sanitary Convention, held in Philadelphia May 12th, 13th and 14th.

As we know that disorders of the intestinal tract cause a very large proportion of these deaths, and that the attempt at artificial feeding is usually productive of unfortunate results, too much attention cannot be paid to the subject. Disraeli, in one of his best novels, tells us that "mother's milk makes the true-born Englishman." Mother's milk is undoubtedly the proper food for the new-born infant, and though I believe we have reached a degree of accuracy in the matter of food preparations and knowledge of the infant requirements that would in a great degree show itself in a diminished death rate, could we secure the thorough co-operation of intelligent nurses and mothers.

I cannot but regret the tendency which the imperative dictates of fashion bring about, to the development of feeble women who are ill fitted to bear the burdens of maternity, or to nourish the children they bear. Wet-nursing and bottle feeding should be discouraged except in cases of absolute necessity.

But let us suppose that for some excellent reason mother's milk is not obtainable and the wet nurse question has been decided adversely, upon what and how should an infant be fed?

We will at once agree that *milk* should form the basis of an infant's diet.

It is composed of five different classes of material which are essential to nutrition; water, casein and albuminoids, salts which go to the formation of bone and secretions, fats and sugar, or the carbohydrates, which latter two have much the same action.

The child gets the same food as the adult, but it gets it in a condition more easily digested and more readily absorbed. More than 87 parts in a hundred of its food is water, but when the chemist tells us that 70% of the human body weight is water, its importance is readily recognized. Then we have the nitrogenous group represented by the casein, the muscle forming; and then the fats and sugar which maintain the animal heat, and the salts for bone and secretion. Digestion is a solution by hydration, so that the elements acted upon may pass readily through the wall of the alimentary canal, after which they are dehydrated.

You see that digestion is not merely a process of disintegration; certain secretions are requisite to bring about the chemical changes required—what are these secretions? First we have that from the salivary glands; the saliva secreted by a child under six months is at a minimum, very little is required, simply enough to lubricate, but I may say that in a series of experiments I have recorded, a child of 7 days who secreted saliva which possessed sufficient diastase to convert the boiled starch used into grape sugar. This readily accounts for those infants who fatten on corn starch, much to the surprise of the family medical attendant.

As the child grows and teething begins, quite a large amount of saliva is secreted, and undoubtedly the activity of this secretion forms a prominent part in its digestive process; in other words a child that slobbers as a rule has little digestive disturbance.

From birth the gastric juice takes a prominent part. By it the curd is precipitated and turned into peptones or albuminose. All albuminous matter is so converted, and a burden by no means light is placed upon the liver, an organ more prominent in infancy than in adult life, to dehydrate this material which now courses through it, to maintain its glycogenic function, and to throw off those refuse matters that are discharged into it.

The precepitation by gastric juice of

the casein presents some curious features, indeed this matter is of fundamental importance in our studies. Woman's milk is alkaline, it is watery, its curd is precipitated in soft flakes. Cow's milk is slightly acid, its curd forms in firm hard masses of cheesy consistence. Brush, in 1879, told us that the curd in all cud-chewing animals, of which the cow represents the class, was thrown down in masses so as to be readily regurgitated by the calf for the purpose of trituration. In the non-cud-chewers the reverse is the rule. There may be other peculiarities of the curd, chemical differences, but these have not as yet been determined.

The secretion of the pancreas is the next and last of importance. It is composed principally of two materials, in fact a third may be added, the curdling principle; these will act in an alkaline or faintly acid solution: the first a material analogous to the pepsin of gastric juice which converts casein or other albuminous matters into peptones, such substances that have escaped the action of the gastric juice, and a *diastase* like that of the saliva which converts starchy matters and cane sugar into dextrine or grape sugar.

To the infant the gastric juice is the most important of its secretions, only such food as contains albuminous matter with soluble carbo-hydrates as glucose and oil in emulsion should be given—such, indeed, is milk.

We have then two matters to consider in the artificial feeding of infants—and I shall limit myself to those within the first year—one, the preparation of a food containing the elements of mother's milk, in a combination as much like it as possible; and the other, no less important, the elaboration of those secretions which digest it—an equal balance must be maintained between the two. I will confine myself to the questions of the former. With all due respect for the opinions of those who have endeavored to give us an accurate analysis of woman's milk, I feel that in basing upon it any preparation that would be invariably scientifically correct, we would fail in the very line which nature herself has clearly drawn for us, that is by not giving sufficient latitude for the different organizations of different individuals.

Granting that the human milk is the proper basis to start upon, how much food does a child require in 24 hours? So much depends on the infant: if the bowels are normal, and there is no evidence of indigestion, the breath sweet and the child seems desirous for more after it has finished its bottle, there is no reason why it should not be satisfied. A child of a month should be nursed about ten times in 24 hours, every two hours during the day and three hours during the night: at each nursing it should take from two to three ounces of milk. At the age of about three months it will probably nurse only about eight times, taking about six ounces at each feeding; at the end of about six months it will take about eight ounces. I believe that this would represent about the amount of breast milk that such a child would receive.

Having now stated the amount of food that a child requires, let us dwell at some length on the character of its diet and its preparation. In order that the directions may be carried out thoroughly they should be made as simple as possible. We all acknowledge that cow's milk has the following advantages: it serves as the basis for the preparation of a milk resembling that of the human mother, it possesses all the ingredients that are necessary for nutrition, it is easy to obtain. Its disadvantages are, that the relative proportion existing between its different constituents is not that found in mother's milk, it possesses a form of casein which forms hard curds, this casein exists in larger amounts, at least twice or more than in human milk.

It is impossible for the child to nurse directly from the cow, and therefore a certain time must elapse during which the milk undergoes possibly some alteration from exposure to the air, is liable to be tainted with the germs which produce decomposition, and this indeed is the greatest objection to its use in our large cities. It is acid, though precisely what affect this has, or what it is due to, is not exactly clear to my mind.

But these objections can be readily obviated by the following means: the milk from an ordinary dairy should be obtained as fresh as possible, mix together a half of a pint of this milk and a half of a pint of pure water, and to this should be added about two hundred grains or two heaping teaspoonfuls of milk sugar, with four grains of bicarbonate of soda; it should then be brought to a boil, after which two tablespoonfuls of cream should be stirred in, and it is ready for use, to be given by bottle or drinking cup, at about the body temperature.

We have here a mixture, which, according to Leeds, closely resembles mother's milk; we have also a preparation which has been freed by boiling from the objection stated above, in cow's milk, that due to a tendency to fermentation, and indeed the milk is rendered more digestible by it.

In new born children or those a month or two old, we may diminish the amount of casein and increase the amount of sugar by the following means: Take one ounce of ordinary milk, three ounces of water; add one ounce of ordinary cream and about a level teaspoonful and half (80 grs.) of milk sugar. Indeed, it is better to run the risk of making a mixture with too little casein than with too much, gradually increasing strength of the milk by diminishing the water, as the child grows older; but it should also be borne in mind that as we increase the water we should also increase the carbo-hydrates, by adding either sugar of milk or some of the malted foods. Sugar of milk rapidly sours and turns to lactic acid when dissolved in water; and indeed, I believe that on this account there is little choice between it and *cane* sugar. In a case of diarrhœa, I would leave out *sugar* altogether. My own experience teaches me that with care, cane sugar has not the disadvantages in most cases, in winter, that some fear.

This brings us to the subject of condensed milk; a reliable brand of Borden or Canfield's has the following advantages: When diluted with 5 to 10 parts of water, it represents mother's milk pretty closely, with the exception that there is less cream, but to a pint of this mixture four tablespoonfuls can readily be added. The evaporation of the milk in its preparation has destroyed its tendency to fermentation to a great extent, this most certainly is a great advantage; it will coagulate in flakes, and does not require the addition of any sugar, as by analysis it is shown that when the mixture is thus prepared, the amount of sugar it contains is about equal to mother's milk. It can be universally obtained, and is useful on that score; its disadvantage in many instances is due to the cane sugar, and some object to it on the ground that it is supposed in many cases to lead to rickets.

My own experience does not bear this out, though certainly if I were to find that a child fed on condensed milk should show undue acidity, either in its stools or its breath, due to the presence of lactic acid, I would at once change its diet. This, careful watching should avoid.

In summer weather the presence of cane sugar, which is a decided laxative, is objectionable, and herein exists the great difficulty of the proper selection of a food for that season.

In order to counteract any tendency to rickets, I usually incorporate in the milk some lime—either lime water, or still better, I think, the lactophosphate and carbonate of lime; indeed I would establish this as a rule in the preparation of all milk foods that require the addition of sugar. In my opinion, lime water falls far short of reaching the good claimed for it. When we come to consider that only *eleven* grains of lime are found in the pint, two tablespoonfuls will contain about one-third of a grain, too small an amount by far to be of any service whatever in either neutralizing any undue acidity, or of any service in supplying lime to the tissues; it will need equal parts to accomplish the former; the probability is that it is the dilution of the milk which is beneficial in cases where it is thus used.

I have made some very interesting experiments in this line with Mr. Louis Genois, the result of which is as follows: To a half of an ounce of ordinary milk, eight drops of dilute muriatic acid were added, and a curd was thrown down irregular and lumpy. The same milk was taken, and to half an ounce a half grain of lacto-phosphate of lime was added, and the same acid used; the precipitate was smooth, fine, and in fact creamy. The solubility of this preparation of lime, its action on the curd, and its value in counteracting the great tendency to rickets, which I believe exists in all hand-fed children, gives the matter great importance.

For this reason I have had made for me some compressed tablets, each containing a certain proportion of sugar of milk, lime in a soluble form, and carbonate of lime, which will, with a small amount of soda, neutralize any undue acidity of the milk. A certain quantity of water is taken, brought to the boiling point, and to this is added the needed amount of milk, say an equal part, in which has been dissolved two or more tablets, and to this is added the necessary amount of cream, and given to the infant in nursing-bottle or by spoon. at the required temperature. Certainly the most stupid mother cannot fail to follow directions so easy. I may say here that this food would be most valuable for nursing women; the loss of teeth, so common during the child-bearing period, is due to a want of lime supply. Nursing mothers should take lime for themselves and for their milk.*

Let us study for a moment the question of the "fresh evaporated milk," served daily in some cities by the Canfield Company, and which, I think, offers for the future the best field for infant feeding, in those cities where it is daily supplied, especially in summer time. The following is its analysis, as given by Prof. Chandler, of New York:†

Water	52.74	+
Butter	13.70	+
Casein	15.04	+
Sugar	15.80	+
Salts	2.71	+

If we add seven (7) parts of water previously boiled or filtered, we have a mixture of which the following will represent the analysis:

Water,	94.8
Butter,	1.72
Casein,	1.88
Sugar,	1.98
Salts,	.34

---

* These tablets are prepared by J. J. Ottinger, Twentieth and Spruce streets, Philadelphia.

† 1 quart of water weighs 2.082 pounds.

1 quart of milk (sp. gr. 1.035 weighs 2.149 pounds.

430 quarts fresh milk=924 pounds.

Deduct 330 quarts of water, removed by evaporation=68.7 pounds.

We have 100 quarts condensed (evaporated milk)=237 pounds.

Now, 430 quarts (926 pounds) fresh milk at $12\frac{55}{100}$ per cent. solids contains 116 pounds solids; 100 quarts of condensed milk (evaporated) (237 pounds) at $46\frac{46}{100}$ per cent. solids contains 110 pounds solids. C. F. Chander.

Report of Commissioners Public Charities, New York, 1871, p. 216.

Then, taking an analysis of mother's milk:

Water,	87.16
Fat,	4.28
Casein,	1.04
Sugar,	7.4
Ash,	.1

We find that it will be necessary to add to the half pint of the above mixture of evaporated milk, two (2) tablespoonfuls of cream and two (2) heaping teaspoonfuls of sugar of milk. This will be equal to cow's milk, with about the same percentage of casein as mother's milk. The absence of cane sugar in this preparation renders it most valuable in summer in our large cities when diarrhœa is prevalent. Indeed, in such cases half of an ounce of this milk in a graduated glass with four ounces of water, previously boiled and filtered, given at the temperature of the body, about 99°, without adding cream or sugar, would in many cases be a most suitable diet. If the bowels are loose, lime water could be used. Unquestionably disorders of the intestinal tract are produced by *fermentation* and also by *mechanical irritation* of undigested curds, and this is often due to not alone the method of preparing the food, but also to the deficient supply of the gastric juices. If a large supply of gastric juice could be encouraged, both of these causes would cease to exist, as the acid mixture is antiputrefactive as well as digestive. Indeed, the acid treatment of summer diarrhœa is an admirable and recognized one, but the limited amount of pepsin and hydrochloric acid that we can administer as a corrective is in many cases insufficient. On this account we are obliged to use some means so as to prepare the milk and destroy its ferments, and to diminish its casein, or so affect it as to allow precipitation in fine masses. The former is readily accomplished by boiling, or by subjecting the milk to heated steam, the latter by several means now in vogue.

The *first*, by rendering the milk alkaline, which retards in a measure the coagulating property of the gastric juice.

The *second*, by diluting the milk with water, which diminishes the percentage of casein.

The *third*, by thoroughly incorporating with it some material, such as gelatine, or a small amount of starchy matter, such as oatmeal water, that will intimately incorporate itself in the casein as it falls, and thus allow the gastric juice to completely attack it ; and, *fourthly*, to partially predigest the casein, peptonize it as it is called, before it enters the stomach.

We have, in addition to these, various other preparations, which are sometimes added to the milk to render it more nutritious, for example, soluble carbo-hydrates, as dextrine, glucose, or substances rich in albuminous matters. This in fact covers the whole ground of the various preparations used in the bottle feeding of infants, and you will thus see that they all have some scientific basis to work upon, and their choice questions of expediency and reliability, which should be studied in connection with each particular case.

Let us study these matters *seriatim*. The experiments of Reichmann, and indeed our own experience, show that boiled milk is more digestible than raw. All city children under a year, and in those older who are passing through the heated term, with whatever form of diet in use having milk as a basis, I would certainly advise that the milk be brought to a boil, or at least thoroughly scalded. Of course, if condensed or recently evaporated milk be used, this is not necessary.

Boiling has another great advantage ; it is germ-destroying, and possibly milk contaminated by the contagium of scarlatina, typhoid fever, or even tuberculosis, may be rendered harmless thereby. Let us now take up in turn the *four* divisions of our subject :

1. Cow's milk can readily be rendered alkaline by the addition of lime water in large amounts, soda or potash, and the curd affected thereby. I think the importance of alkalinity is somewhat overrated, that is, the tendency seems to be to put too much soda in the milk ; all that is required is to make it neutral, even for peptonizing purposes.

2. Dilution with water, which should always be previously filtered, to the amount of once or twice its bulk, will so affect the percentage of casein in cow's milk as to bring it to that of the woman, and also will control the precipitation of the curd, even should the milk remain slightly acid. But this will also reduce the amount of cream and sugar; these must be added.

The question of the digestion of fat needs but a few words. It is greatest in demand at the time when animal heat is the most required, that is during the winter months, the fats and soluble carbohydrates when supplied in excess are stored for future use ; their excess in hot seasons is productive of intestinal disorders. In such cases a change to albuminous water, made by dissolving the white of egg in water makes a nutritious diet and is a valuable change. The oils when stored away give a condition of body which is firm and elastic to the touch, and when this reserve is called upon the emaciation is gradual. On the contrary, when the storage takes place from excess of glucose, the fat is not *staying* and its disappearance is sudden. This is well seen in children fattened on condensed milk to which no cream has been added. It is admirably described by Dr. Weir Mitchell in his book.

Lessen then the amount of cream and sugar for the summer season, increase the nitrogenous elements, and render it as readily digestible as possible.

3. There are certain materials which require other juices than the gastric secretions to digest them, and which mingling with the curd allow the gastric juice to precipitate it slowly and thoroughly attack it. These are the cereals. The starchy granules must be thoroughly broken up by boiling or by dry heat, so that either the saliva or the secretion of the pancreas can change the insoluble starch into soluble grape sugar. The infant secretes but little saliva and probably but little of the pancreatic diastase; on this account but a small amount of starchy food should be given it. The milk can be diluted with its bulk of water, which can be previously thoroughly boiled with either ground barley, oat-meal or baked flour, in the proportion of a dessertspoonful to the pint, the milk poured in while the water is boiling, the whole boiled together for a moment and then strained. This can be sweetened, a small amount of cream added, and it forms an excellent food for a child after its fourth month ; earlier than that I would prefer the plain milk diet.

The starch should always be placed in a position so as to readily facilitate its conversion into grape sugar, which can be done either by heat or by malting.

Fothergill tells us "By heat the cook cracks the starch granule so that the solvent diastase can readily act upon it. So far, so good ; but heat does something more. It has an actual solvent action, and heat will, if sufficient, cause conversion of starch into dextrine. A thoroughly well baked flour if subjected to the iodine test under a microscope will readily show this.

"When a large quantity of raw unconverted starch enters the stomach it is a burden to that viscus. The gastric juice has no effect upon starch, and the starch granules merely embarrass the action of the stomach until they find their way out of it by the pyloric ring.

"The advantage of the numerous prepared foods—whether babies' foods or invalids' foods—which are all more or less compounds of starch which has been to as certain extent predigested either by baking or the malting process, lies in their ready digestibility. A touch of saliva is enough to complete the conversion of such carbohydrates, and the soluble matters pass out of the alimentary canal, and the stomach is not burdened with a weight of undigested starch impeding its work.

"Starch granules which have escaped the saliva interfere with the solvent action of the gastric juice on albuminoids."

4. The casein can be previously partially digested by adding to the milk the pancreatic secretion, that which is analogous to the pepsine of the gastric juice, but which is deprived of its curdling element, and which acts in an alkaline or faintly acid medium.

The peptonizing process, or that of converting casein into peptones, can be arrested by boiling the milk just before it assumes a bitter taste, which completely digested material of this sort has.

The value of Fairchild's extract of pancreas in its relation to artificial feeding cannot be overestimated; the milk should be made very slightly alkaline by a small amount of soda. I think too much soda is usually recommended for infant use.

The peptogenic milk powder contains a certain proportion of extract of pancreas, sugar of milk, soda and salts, as suggested by Professor Leeds, and when used with cow's milk and cream forms a combination like mother's milk with the curd partially digested.

I sincerely trust that I have succeeded in convincing you so far that the question involved in the diet of an infant within its first year is simple enough. It is not by making these matters complex that we will accomplish our purpose—not by surrounding them with the impenetrable network of scientific analyses. Our *sums* should be done in private in the laboratory. Our instructions should be made so simple that every mother or nurse can carry them out, But let me for a moment bring before you a tangled mass of material which we will endeavor to unravel; for I know much confusion exists in the lay mind in regard to it—that of the preparations used in the artificial feeding of infants—*baby foods.* We can consider them under three headings.

The *first*, the milk foods. I have already spoken of condensed milk, and need dwell no further upon it. Nestlé's food, which contains condensed milk, dried, with starch and glucose, is largely used. Its composition, according to Stutzer of Bonn, the analysis of which I attach to this paper, would lead me to recommend it only after the child has reached the fourth or sixth month. Carnrick's soluble food is also valuable on account of its large amount of albuminoids and fats; it also contains milk which has been peptonized. The amount of starch which is shown in the analysis would lead me to recommend its most extensive use after the fourth or sixth month. Containing as it does a relatively large quantity of bone forming material (lime, phosphoric acid), it should stand very high as a food, and, indeed, in many cases might be used by very young infants. There are many other foods under this heading, but I will be obliged to refer you to the article on diet in J. Lewis Smith's book, page 58, 6th edition.

The *second* division comprises what are known as Liebig's foods. By this is understood dried preparations composed of grain, which has with it a certain amount of diastase or malt, and part of which has been converted into dextrine or grape sugar. They also contain albuminoids, which as you know are the nitrogenous elements, like the curd of milk. Some of these foods contain to a certain extent an amount of starch, which in many of them is in a condition readily to be converted by heat and moisture into a soluble grape sugar. Their efficiency and digestibility depend on the amount of glucose and albuminoids which they contain.

As a rule, they should be used with milk after the child has reached its fourth month, though at a very much earlier period in many cases they have been found very useful.

From the analysis of Stutzer, the most recent made, I would place Mellin's and Horlick's food in advance of the others, on account of the large amount of the soluble hydro-carbons and albuminoids, and an exceedingly small amount of free starch. Of course, these foods should be used in small quantities, and always with milk; at first they should be looked upon as so much sugar, only possessing, in addition to the grape sugar, certain very nutritious materials (albuminoids), which ordinary glucose has not, and also the bone-forming materials which we find in the cereals.

We now come to the *third* division, the farinaceous group, known as "wheat foods," including Imperial Granum and Ridge's food. They, in fact, are nothing more than starch which has been subjected to a more or less careful heating process, and can be used for children after four months, as I have suggested in a former part of this paper, when speaking of starches to aid the digestibility of casein. The starch granule in many of them has been thoroughly broken up by a careful heating process, and thus reached an advanced point towards its digestion in such foods as Hubbel's and Blair's wheat food.

I beg of you then to bear in mind that milk alone, with more or less alteration in the percentage of its ingredients, should serve as the food for a babe for at least two months.

The bringing up of children by the bottle is by no means as difficult as many think. All that is required is a thorough understanding of the object in view, by the doctor, nurse or mother, and thorough cleanliness and regularity, and an intelligent carrying out of matters that routine will soon render very simple. *But bear in mind that there can be no cast-iron rule by which all children are fed. Each child differs from another, and it is he who makes a study of each special case who will be most successful in accomplishing the purpose desired.*

1504 *Walnut street.*

BY DR. STUTZER. OF BONN, GERMANY.

		Nestlé's Food	Carnrick's Soluble Food	Mellin's Food	Wells, Richardson & Co.'s Lactated Food.	Horlick's Food	Dr. Ridge's Patent Food.
Fat		4.66	5.00	0.50	2.19	0.60	1.27
Protein substances (albuminoids)		11.46	18.22	8.34	9.05	11.30	8.76
Soluble hydrocarbons (sugars, dextrin, etc.)		41.22	26.87	60.89	25.52	65.92	1.79
Insoluble hydrocarbons (starch, etc.)		35.47	40.87	18.40	52.92	13.12	78.66
Cellulose		0.10	. . .	0.58	1.54	0.55	0.73
Water		5.34	6.14	7.76	6.52	5.75	8.31
Salts and inorganic constituents		1.75	2.99	3.53	2.26	2.76	0.48
Amount of nitrogen in protein substances		1.833	2.915	1.335	1.448	1.809	1.403
Amount of protein substances readily digestible		11.09	16.45	7.38	8.35	10.85	7.97
Proportion of nitrogenous alimentary substances (Protein = 1)		1:7.7	1:4,4	1:9,6	1:9,2	1:7,1	1:9,3
The inorganic constituents contain	Lime	0.390	0.645	0.155	0.390	0.060	0.060
	Phosphoric acid	0.630	0.874	0.583	0.688	0.421	0.260

—From *Pharmaceut*, Central Halle, Berlin, 1886, No. 8; *Pharmac. Rundschau* (New York), 1886, page 89; *Buffalo Med. and Surg. Journal*, May, 1886, page 472.

DEATHS IN PENNSYLVANIA AND NEW YORK, FOR YEAR 1880.

		Under 1 year.	1 year . . .	2 years . . .	3 years . . .	4 years . . .	Total under 5 years . . .
PENNSYLVANIA.	M.	7694	2274	1510	1034	782	13294
	F.	6048	1920	1310	918	780	10976
NEW YORK.	M.	11335	3139	1719	1113	821	18127
	F.	9179	2788	1492	1074	781	15314

Total deaths, in two States, under 5 years of age, 57,711.

Table showing for the United States and for 31 registration cities, the living population under 5 years of age, the number of deaths, and the number of deaths per 1000 of living population, compiled from U. S. Census Report for 1880.

	United States.			31 Registration Cities.		
AGES.	Living Population	Deaths of Corresponding Ages	Proportion of deaths per 1000 living	Living Population . . .	Deaths of Corresponding Ages	Proportion of deaths per 1000 living . . . . . .
Under 1 year .	1,447,983	175184	120.9	165469	44249	267.5
1 year.	1,256,965	56816	45.2	132933	11623	87.4
2 years	1,427,086	33417	23.4	162715	5977	36.7
3 years	1,381,274	21276	15.4	157646	3898	24.7
4 years	1,401,217	15931	11.3	156913	2824	17.9
Under 5 years .	6,914,516	302624	43.7	775676	68571	88.4

REMARKS: In considering this table it should be remembered that the reports of deaths for ths whole United States are defective from 15% to 30%, while for the cities they are nearly complete. It will be seen that for each 1000 living under 1 year of age in the United States at large the proportion of deaths was 120.9; while in the cities the number of deaths per 1000 of the same age was 267.5. Under 5 years of age the proportion of deaths in the country at large was 43.7 per 1000 of living population, while in the registration cities it was 88.4 per 1000. In other words, the mortality of children under 5 years of age, according to this table, was about twice as great in the cities as in the average of the whole country.

Table showing for the United States, for Massachusetts and for the principal countries of Europe, the number of deaths up to 5 years as compared to 100 deaths of all ages:

	Under 1 year.	1 to 5 years .	Year . . .
United States	23.24	16.90	1880
Massachusetts	20.37	14.23	1880
Italy	24.77	20.60	1880
France	17.59	8.83	1879
Prussia	32.25	15.96	1880
Bavaria	39.48	10.71	1880
Saxony	42.00	15.34	1880
Thuringia	31.71	15.30	1880
Wurtemberg	41.78	11.92	1880
Baden.	33.77	12.33	1880
Alsace and Lorraine . . .	28.74	11.96	1880
Austria	31.62	16.51	1880
Croatia and Slavonia . . .	30.44	19.37	1880
Switzerland	24.34	8.97	1880
Belgium	25.99	13.09	1880
Holland	31.01	14.10	1878
Sweden	19.58	13.68	1880
Norway	20.59	12.21	1878
Denmark	23.49	12.19	1880
Finland	25.55	18.73	1880
European Russia	38.82	20.81	1875
Spain	22.93	25.20	1865–70
Greece	18.09	17.30	1880
Roumania	23.54	19.33	1879
England and Wales. . . .	25.48	16.98	1880
Scotland	20.31	17.37	1878
Ireland	13.98	11.60	1880

REMARKS—It will be seen by this table that as regards the proportions of the infantile to the whole mortality, the United States is near the mean, being exceeded in the proportion of deaths occurring under 1 year of age by Austria, Belgium, England and Wales, Germany, Holland, Italy and European Russia, while France, Sweden and Norway, Scotland and Ireland, have a lower rate.

◆

With an iron constitution, steel nerves, brass cheeks, and a silver tongue, man can line his pockets with gold.

ECONOMIC SANITATION.*

BY ALBERT L. GIHON, A. M., M. D.
Medical Director U. S. Navy.

As in nature all force, manifested in energy or power, is obtained through the equivalent exchange of some other form of impetus, so, even in the ordinary transactions of life, we find that whatever is efficient is the outcome of the expenditure of a proportionate amount of labor, or is purchased by labor's equivalent, money. There are make-shifts and shams and Brummagem wares that are cheap, and their very cheapness is the measure of their worthlessness. The veneering pleases the eye—but there is nothing stable and enduring to benefit those that outlive the moment.

Sanitation, while not a commodity in the sense of a concrete object of barter, has its financial value—to be estimated like other mundane products by the cost of human skill and labor expended in its accomplishment. Unfortunately, the popular preference for cheapness without regard to worth, has led to an arbitrary valuation of the health-service not commensurate with its actual importance. The distinguished pleader before the Supreme Court of the United States receives a fee of five or ten thousand dollars for an apparently off-hand conversational discourse before a number of elderly gentlemen in silk gowns, but nobody questions the fitness of the reward, which comes after a lifetime of learning and experience. The president of a great corporation is given the salary of the ruler of a state, and seems only to have to sit leisurely a few hours daily in a handsomely furnished office, but the intelligence, aptitude and training, which fit men for such a position are known quantities and their value recognized. But, were it ignorantly believed that any glib talker could fill the pleader's place, or any well-mannered and well-clothed individual could make a successful financial leader, the idea would be no further from the truth than that superficial estimate of sanitary work, which looks upon it as a matter to be accomplished by the outlay of a few hundred dollars and the employment of one or two subordinate clerks.

Sanitary establishments, like other important undertakings, involve qualified control and skilled labor, and both have easily computed market values, the requisite brain-force and muscle-force being the resultants of so much education and application; but, up to this time, through the disinclination to stint in ornament and luxury, the expenditures for sanitary objects have been reduced to a minimum, and the results obtained have been correspondingly limited. Nowhere is this more manifest than in places under the control of the State and National governments. The wretched sanitary defects of the Treasury building at Washington, suggested an examination two or three weeks ago, which revealed a mess of hidden abominations in the Winder Annex to the War Department; and a just published report of the insanitary condition of the Ohio state-house at Columbus, reads like a romance of horrors—with filth as the chief villian, and ignorance and neglect his wicked coadjutors.

The purport of the little I have to say on this occasion, is that sanitation—the thorough effective sanitation which saves life, secures health, contributes to wealth, comfort and happiness, is not cheap; and that the mistake which health officers have made and are still making, is in accepting, under feeble protest, if any, the petty sums, grudgingly doled out by legislative bodies, as sufficient to accomplish, in any sense, the objects of their establishment. And, first, it ought to be understood that sanitary tinkering is worse than absolute neglect. A house, imperfectly trapped is more dangerous than one reeking with foul smells through the false sense of security given by its assumed protection; and the Health Board with its munificent appropriation of a few hundred or a thousand, or even two or five or ten thousand dollars for rent, salaries and executive acts, is a Health Board in name only, and the community under its charge fancies itself clean because it wears a clean shirt over a dirty body and festering sores.

---

* Read before the State Sanitary Convention, under the auspices of the State Board of Health of Pennsylvania, at Philadelphia, May 12, 1886.

Much time and argument have been expended in the American Public Health Association, State Sanitary Conventions, Citizens' Auxiliary Sanitary Societies, and like assemblies, in establishing abstract propositions, that health is wealth, that the public health is the public weal, that an ounce of prevention is worth a pound of cure, that it is cheaper to keep out disease than to drive it out—and if the public are ever to be educated in the rhetoric of hygiene, it ought by this time to be in the Sanitary Sixth Reader; but it is this same public which has also been taught that the wages of sin is death, that what does it profit a man if he gain the whole world and lose his soul, that the sins of the fathers are handed down to the children of the third and fourth generation—and yet prisons are never empty, nor gallows idle.

It is futile, therefore, to depend upon mere preaching to bring about that change of heart that will move men to do what they ought for their physical welfare. Society must have *faith* in its medical men, and accept as truth what those qualified by education and experience tell them, and do what they advise—advice, the honesty of which can not be gainsaid, since aiming to banish disease, it actually lessens the professional emoluments which sickness brings. Sanitary instruction must now be supplemented by sanitary execution. The exposure of the evil to be corrected must be accompanied by the peremptory statement of the remedy, and in no uncertain terms as to quantity and cost. The Secretary of the State Board Health of New Jersey says, in his report for the past year: "While it is still necessary to gather information for diffusion among the people, it is now far more important to educate individuals in the technical work of oversight, inspection and execution, and to perfect the details of sanitary administration." And this is the paramount duty of health officials—to put into practice what they have so long preached, which is not as easy a matter as it seems. The intelligent head may be there, but the many hands are lacking to do its bidding. The sanitary mechanism may be complete, but if there be no fuel to start its fire, it can not move; and on this humble substratum of the material all human efforts rest: the doing is dependent upon the means of doing.

Sanitarians have perhaps erred in proclaiming so widely that sanitary science is a very simple matter, which like phonography and the Spanish language, needs only the alphabet to be mastered, that the student may know in one lesson how to spell words of any number of syllables. Fresh air, pure water, good food, a clean skin, sound sleep, temperance and exercise, are the seven simples, which like the straight lines, and curves, and dots and dashes, are able to express any combination of circumstances. But for all that, an intelligent head, a skilled hand, and a watchful eye are needed to combine them effectively. There are some physicians—it is true not of a very high order—who take pains to announce that they are therapeutists and not hygienists. This, partly through the shallow idea that there is greater dignity in treating a sick man than in preventing his getting sick, but chiefly because, in the language of one, he feared that the dissemination of sanitary knowledge would cause lawyers, preachers, merchants and mechanics to know as much as himself, and that, therefore, his occupation would be gone. This at least is certain, that the physician whose horizon hems him within a circle of such small diameter, does not himself possess the requisites for a capable and efficient health officer. Without a special dialect of polysyllabic Greek, or an exclusive scientific technicque to be gotten by heart, the sanitary service demands intelligence, information, judgment, skill in organization, executive ability, readiness of resource in emergencies, firmness, fearlessness, honesty, zeal, enthusiasm and self-abnegation, which are not everyday qualities nor everybody's characteristics. Recently said the Governor of a great State to a famous officer of a State Board of Health, "What are we to do should you die? Are you training any one to take your place?" The State Boards, which have accomplished the most satisfactory results and given preventive medicine its proper place in the van of scientific medicine, owe their success to their energetic and accomplished officers. These need not be named. Whoever has attended the meetings of the American Public Health Association—the common ground on which these men meet once a year—will recognize them. By their works they are known. All of them are able men—some with idiosyncrasies and personal peculiarities, which you or I may not like—but all of them zealous, earnest, indefatigable in the cause of public health. They have won their places by their merit, and hold them through its popular recognition, some of them already so long that State, cause and individual have become convertible terms.

Such men are the first essential to successful sanitary work, and it is greatly to the credit of our people that political party, religious creed and professional dogma have not controlled the personnel of those State Boards, which have accomplished the most marked results. Very recently we have witnessed the gratifying spectacle of the remaining members of a State Board, the Governor of the State, municipal authorities, neighboring sanitary organizations, press, pulpit, and people, uniting to protest against the resignation of a Health Officer, who had given so much time, thought and means to the Board over which he presided, that he had almost forgotten there were domestic claims upon him as a man of family.

And this suggests what I desire to say as to the necessity for compensatory salaries for these men, who sacrifice personal interests and the opportunities for strictly professional gain, in the cause of public health. The sanitary service demands the ablest minds in the medical profession, and like the judges, who are drawn from the leaders of the legal profession, they should be secured a fixed income, befitting the dignity of their office, and enabling them to provide that comfortable maintenance of their families during their lives, and provision for their support after their death, which is every just man's ambition. While adequately rewarded for their services, they should be guaranteed against this world's vicissitudes. The health officer who feels the pressure of the *res angusta domi* can not be expected to give that altruistic attention to his duties which is necessary. Neither should his remuneration depend upon the receiving of fees, which, if munificent, attract a brood of political cormorants, who expect to be fed from them. The evil sound of harpies' wings should never be heard about Hygeia's temples.

Unless the Health Officer's position is

dignified and exalted and correspondingly requited, only incompetent make-shifts will after a while be obtained, whose perfunctory performances will have neither value nor influence. Not yet have the sanitary officials of any state received the full measure of distinction and pecuniary reward to which their labors entitle them, but in their zeal for the development of this yet new branch of the public service, they have given their time without question of pay, and been content in the hope of winning the popular gratitude. Here, as in many other instances, calling for evidences of the loftiest humanity, enlightened Christian races may learn a lesson from the benighted pagan. Some of you may have heard the interesting address of the Secretary of your new-born State Board of Health, in which he portrayed the public state of the laurel-crowned and purple toga-ed Sanitary Inspector of old Rome, and the popular ovation he received as his chariot passed on his daily round of duty. How many citizens of Philadelphia think to salute the chief health officer by lifted hat? How many know either his face or his name? Great as any judge or law-maker, greater than any general or admiral, the minister of health is of right *primus inter pares*, the chief physician of the state, on whose wisdom its prosperity and security depend. His emolument, therefore, should be no insignificant sum grudgingly given, but a generous competence bestowed upon him as the archiater, who has the power to make more of his fellow beings happy in the enjoyment of sound health, than any other single individual. Practitioners of curative medicine, specialist therapeutists who limit their work to single organs and apparatus, pile up gold and greenbacks in stacks, while the man who would keep disease away from the community not only sacrifices his opportunities for personal enrichment, but is not even recompensed for his actual work in the service of the public.

There is the same need for the liberal remuneration of subordinate health officials as for that of their seniors, to secure the efficient and zealous performance of their duty. The delinquent or venal sanitary inspector is as much of a nuisance, in the sense of causing damage, as any he is called upon to abate. In the service of the public health, as in the ministry of morals, there must be sterling integrity and unadulterated honesty; but it is asking too much of either that, in the absence of sufficient pecuniary return, they should be content with an uncertain quantity of the homage and gratitude of the community, which should supplement, not substitute the former.

Well-paid, permanent officials are absolutely necessary to an efficient sanitary service, but the most liberal salaries and the utmost fixity of tenure of office will not enable the most competent officers to accomplish anything without command of abundant means, and *abundant* is what Webster defines it to be, "fully sufficient." The varying needs of different seasons and conditions are not to be met by the small sum which is annually appropriated for sanitary purposes. Let us cursorily recall what a health board has to do.

It has first to make a thorough sanitary survey of the city or town, and this involves what is termed a house-to-house visit and inspection of every occupied dwelling, factory or other resort of human beings, whether it be a Walnut street mansion or a Bedford street hovel—of every schoolhouse, church and theater—of every stable, cattle-yard, hog-pen, and wherever else animals are congregated—and of every warehouse, and storage place of perishable materials;—the actual examination of every bedroom, attic, kitchen, basement and cellar—of every storeroom and out-of-the-way closet—of all alleys, yards and outhouses—and the critical inquiry into their drainage, sewerage, and ventilating systems. Velvet carpets and downy beds are no safeguards of health against a siphoned or unventilated trap, nor can the costliest and wisest master in medicine undo the damage wrought by one open soil-pipe joint or one broken drain under the rich man's basement—damage, perhaps, as great as that from the soggy, rotten floors of a rag-picker's filthy underground den. The mere labor of exposing and opening to the light and air every unclean and unwholesome apartment—of requiring them to be drained if wet—of having their decayed wood taken out, their noisome rubbish removed, their walls whitewashed—of having accumulated refuse carted away from obstructed alleys and back-yards and neglected lots—is more than any existing health board can do thoroughly with the means at its disposal—and this is only part of its duty.

In most cities, notably your own, the supervision of the cleaning of the streets is a task for Hercules—and the proper performance of this duty implies not a mere superficial sweeping of a few principal throughfares, but the actual *cleaning* of every street, by-way and alley. If every scoffing councilman will dig from between the cobble-stones of the street before his own dwelling some of the fetid slime which has lain there for years, and bring it within smelling distance, he will need no other inducement to vote a liberal appropriation for this one office of the Health Department, and if he will carry it to some friend, with a microscope, who can show him the living swarms which multiply there, he will double the appropriation. The experiment may likewise be commended to the doubting Thomases among the citizens, who may thereby learn to control their selection of municipal legislators, strengthening their convictions, if need be, by lingering a moment over a corner sewer-inlet or by going from the fresh out-door air into their own closed cellar—or for that matter by merely entering some crowded school-room an hour after the day's exercises have begun.

Nor are the inspection of houses and cleaning of streets all that come within the province of the sanitary officer. He must see that every newly erected building is properly plumbed—and I would like to know how much money this great municipality annually appropriates for this one matter of the inspection of plumbing. Consider what it involves: The critical examination of the drainage and plumbing plans of every building erected in the city—the personal inspection of every house in course of erection, alteration and repair; and in Washington these inspections are thrice repeated—first when the iron drain-pipe is laid underground and is filled with water and required to remain full until seen by the inspector; next when the vertical and waste-pipes are attached and these likewise filled with water and required to remain so twenty-four hours to discover leaking joints; and third, after all the fixtures, water-closets, bath-tubs, wash-tubs, basins and sinks are in place, properly connected, the water turned on from the street, and everything in working order. Is there any one part of this procedure which is unnecessary? Is it a duty that should be intrusted to careless or incompetent hands? And yet, what provision have you made to secure careful and competent hands to do this work?

But the health officer's duty does not stop at the city's confines. He must follow the subterranean streams of sewage to their eject upon river or sea, and thence until they are dissipated beyond harm to any human being. The thin veil of earth which hides them from sight, is but a cobweb cuirass against the germs and noxious gases that are sought to be imprisoned.

Nor is this even yet all the health officer is expected to do. He must see that the garbage from the kitchen, the offal of the slaughter-house, the muck of the stable and drove-yard, the waste products of the factory, the débris of every human industry, and the dead of the animals, who, whether the foe or slave or friend of man alike partake his civilization only to experience his neglect, are all removed. He has, besides, to prevent the sale of spoiled meat and other unwholesome food, to inspect the vegetables from the kitchen-garden and fruit from foreign ports, and discover that which is unripe or rotten, to detect stale fish and oysters and other marine products, whether in the fisherman's smack or on the dealer's stall, to arrest the vendor of impure milk and expose frauds in butter and cheese, and to guard against the pollution of the water supply; for since by civilization earth, air and water are all contaminated, by civilization should this befouling be removed. Even the drugs, on which men lean to cure them of the evils they have invited, are also adulterated, though this is a counterfeit with which, perhaps, in the interest of health, the sanitary officer will do well not to meddle.

Our list is long enough of sanitary exigencies. Is it reasonable to suppose all this can be done for any petty sum? As well try to economize by feeding the hungry child with half a loaf when it needs a whole one. Our rough outline of the parts of a health organization, calls for sanitary inspectors of dwellings, schools and factories, inspectors of plumbing, inspectors of sewers, inspectors of streets, inspectors of food, meats, vegetables, fruit and marine products, inspectors of milk and inspectors of water, garbage collectors, pound masters, and the bureau officers to control and direct all the various operations, record their results, and collect the vital statistics of births, deaths and disease, which are now regarded as the gauge of the condition of the social system and the measure of its vitality.

Should any health organization hesitate to declare that an elaborate and complete sanitary establishment can only be maintained at a considerable expense, and that it is a false economy which, through neglect, invites a hundred times the actual expenditure of money to repair disaster, a thousand fold its value in interrupted business and diminished incomes, and immeasurable calamity in stricken hearts and desolated homes? It is not impossible to bring to each individual the realization of the fruits of parsimonious sanitary administration. Estimate the expense for medical attendance, for medicine, for special food, and nursing during the progress of a case of typhoid fever, and add to it the loss from interrupted occupation, if it be the provider of the family who is ill, and the instances are innumerable where imperfect plumbing in very stately dwellings has brought all this upon its luxurious occupants as where the foul cesspool beside the laborer's cabin has poisoned both the water from the well and the air, to whose stenches the senses had been blunted. Would one dollar a year for each individual in this great city be considered a burdensome assessment as assurance against this one form of preventable disease—but does your Health Board have anything like the million dollars this would signify? I do not mean that rich and poor alike should contribute an equal numerical quota—that the poor man with wife and eight children should give ten dollars of his hard earnings, and the rich man, with his wife and the rich man's average of but one or two children, only three or four dollars. In the natural order of things, the wealthy must give of their abundance for the general good; but in estimating the sanitary requirements of a community, rich and poor, young and old, are so many similar units, with such equal claims to protection against disease as the social organization provides for person and property against violence and anarchy.

A child is killed by diphtheria, and the cause discovered in its own dwelling, or, more likely, in the school-house, or if an operative in the factory, and through that child another and another victim fall. Can any money value express the real loss from this stint of sanitary supervision against this one preventable disease? Will a dollar a year weigh but as dust in the balance against it? Will the single dollar on one side of your profit and loss account appear as anything but an insignificant pen-stroke against the long array of figures required to balance the debit on the other page? Not long ago, a New York shopkeeper dropped a ten dollar gold piece, and carelessly handled a lighted candle seeking it, setting fire to his place, and causing a loss of ten thousand. Immeasurably more disastrous is the economy which is all eyes after this one dollar, and is carelessly blind to the spark which kindles into a devastating conflagration. The Secretary of your State Board has put into significant black and white the cost of your last epidemic of small-pox, that of 1870–72, and the small sum which might have prevented it: on the one hand twenty-five million dollars; on the other, twenty thousand. There are many here old enough to remember the yellow fever outbreak of 1854, for which economic sanitation was to blame, and which, in a few months, inflicted upon this city a loss exceeding a century's appropriations for sanitary objects.

City, State and Nation vote liberally for educational purposes, and the people of this country clamor for general education as one of their inalienable rights; but neither National Congress, State Legislature, City Council, nor the people, stop to think that that education, which aims to develop and improve the mind, while wholly ignoring the body, will surely be pernicious to the child and disastrous to the race. An article in the *Chicago Current*, by LeRoy Griffin, pertinently contrasts the consideration given to cattle and to children. An outbreak of pleuro-pneumonia or hog cholera, promptly becomes the object of international concern, and commissions are appointed with the widest latitude of expense to investigate and provide a remedy; but scarlet fever or diphtheria may decimate a community, and the health officer is left to his own resources, and these are no money and little authority.

I do not feel that I am here wholly in the garb of guest, for though so long expatriated, the spots which marketh the native Philadelphian can not be erased, nor the clipped vowels from my tongue; consequently I do not abuse your hospitality, while congratulating you on the institution of a State Board of Health, in expressing the mortification I have felt that this great Commonwealth has been only the thirty-second among these State Republics in learning that an efficient Bureau of Health is an indispensable part of the governmental mechanism. The regretable example, which this Keystone of the Union has set with such pernicious influence, is aptly illustrated by the promptness of its neighbor, Ohio, in following its later better patterning. To-day, only five States, Florida and Vermont, Nebraska, Nevada and Oregon, are without State Board establishments, which Massachusetts, to her lasting credit, initiated in 1869, and California, then Minnesota, Virginia, Michigan, Wisconsin, and others successively imitated.

Now that you have a Board, and one admirably officered by experienced sanitarians, it behooves you, citizens of the Commonwealth, to see that it is given power to do its work by your generous support. If you would reap abundant harvest, the seed must be thickly sown. The perfected and costly apparatus of your fire department is not required for every incendiary flame, which often a bucket of water or a hand-grenade would have extinguished, but the havoc which may be at any unexpected moment, were that perfected apparatus not ready for any emergency, would in a single day exceed its cost for a generation. At this very moment, grave and reverend senators are hesitating to authorize the expenditure of a few thousand dollars—less than the cost of a congressional funeral excursion—for a commission to visit Cuba, Mexico, and Brazil to definitely ascertain the facts about the claims of Freire and Carmona to the discovery of a means for preventing or modifying yellow fever, lest it might be found these claims are groundless, without considering the alternative possibility of saving thousands of lives and millions of money. The French Government did not hesitate to send a commission to Spain, which exposed the worthlessness of Ferran's methods; the German Government dispatched Koch to India; and the British Government has just appointed a commission of the highest scientific character to ascertain the truth as to Pasteur's reputed success in averting rabies.

Many years ago, an old style commodore found fault with me for invaliding so many officers and men from the Isthmus of Panama after attacks of Chagres fever, complaining that many of them got well by the time they reached New York, as though that were not the very reason for sending them out of a climate where they would have died or been permanently injured. Just as illiberal is the spirit which withholds the wherewithal for the efficient operations of a Health Board whose aim is to banish preventable disease. The fact that no disease occurs is the splendid argument for the wisdom of the provision. Hold back the necessary means, and I have but hastily shown you that the intended virtuous economy is only vicious parsimony; then, should disaster come, whether to you or to your neighbor, let the evil be upon your own heads.

SEWERING AND DRAINING CITIES.

BY GEORGE E. WARING, JR.,*

Of Newport, R. I.

I have been announced to read a short paper on the sewering and draining of cities and towns. This is rather a large subject for a short paper. All that it will be possible to do, will be to state very briefly some of the leading fundamental principles on which the sewering and draining of towns should be based.

There are two aims to be accomplished: One is to increase the convenience and comfort of living; and the other is to lessen the danger to health and life.

For the convenience and comfort of domestic and municipal life, it is important that water which falls from the sky, and water which rises into the ground, from springs or otherwise, should be removed in such a way that cellars shall never be flooded, and that accumulations of water on roofs, yards and streets shall be carried away without doing harm, and without rendering walking or driving inconvenient or uncomfortable. The best result will generally be attained if these objects are considered by themselves.

So far as the water of the subsoil is concerned, if it has a tendency to rise to the height of cellar floors, or even to the surface of the ground, some means should be provided for carrying it away by a sufficiently deep system of underdrainage. If this were the only thing to be done, it might best be accomplished by exactly the same method that is used for draining farm lands—that is to say, by giving it a free means of escape at a level lower than that of cellar floors. In this way, we can get rid entirely, and without trouble or great cost, of what when neglected constitutes a widespread nuisance.

---

* Read before the Pennsylvania State Sanitary Convention, held at Philadelphia, May 12, 13, 14.

The water which falls on the roofs of houses, and is led to the ground by leader pipes, should be delivered to some point of proper outlet without running into the foundations of houses, without making an inconvenient wash over yards or paths, and without flooding sidewalks. Very generally, the best way to accomplish this is to lead it through pipes as far as the outer edge of the sidewalk, delivering it into a street gutter or into an underground conduit, as may seem best.

When delivered into the street gutter it joins the street wash, which the gutter is primarily intended to carry, and the two volumes combined constitute the surface flow which it is the object of storm-water drainage to remove.

It is a question to be regulated by economical considerations, whether or not to make the drainage provision such as to take care of all the water of exceptionally violent storms, or only to provide for such storms as, from their frequency, would constitute a regularly recurring annoyance. It often costs more than it is worth to make our works so large as to take all of the water coming with great storms which fall only at long intervals, and which continue for a very short time. All that it is generally wise to do with reference to such storms is to make such provision as will prevent their doing actual damage to public or private property.

Having determined the volume of rainfall for which it will pay to provide,—assuming still that the removal of storm water is the only thing to be considered—it will be prudent and proper to depend on well-formed and well-made and well-graded street gutters to carry the whole flow, as far as they can carry it without too frequently flooding the sidewalk or the street. Whatever the conformation of the surface, whether steep, flat, or broken, a careful study should be made of the whole situation, and grades and gutters should be so established as to make the points of excessive accumulations as few as possible. These being established, lines of underground sewers, or drains, which for storm-water work only may be laid very near to the surface, should be run by the shortest and most economical courses to the nearest safe points of outfall.

Considered and treated in this way, the underground work necessary for relief from floods will ordinarily not be serious, especially as there is nothing in the character of such floods, if streets are decently cared for, which will make it objectionable to deliver them into run-ways or water courses near by.

In this connection, it is well to refer to an old and cherished statement, which has constituted a standard and uncontroverted argument among engineers for many years, but which in my judgment is not well founded.

The argument pervades pretty nearly the whole literature of the subject. Baldwin Latham states it as follows:

"A very slight amount of investigation will show that the sewage of the northern towns, in which midden-steads are generally adopted, is, as a rule, quite as impure and nearly as great in volume as in districts in which water-closets are universally used; while at the same time the sewage contains nearly as large an amount of putrescent organic matter as in a water-closet town." He then gives the often-used list of certain towns in England, in some of which there are water-closets and in others of which there are not.

There has been a sort of tacit acceptance of the idea that this means that street wash is as foul as house drainage. All that it really means is that there is so much filth due to other sources in domestic and municipal economies, that the addition or subtraction of mere water-closet matter is of small account. It by no means proves, or tends to prove, that the filth to be dealt with in artificial drainage, is largely due to street wash. It is really due much more largely to kitchen and laundry waste and chamber slops than to anything else. There is no reason why any of these should be delivered into the street drainage. Being withheld, the water flowing over the surface, or even tolerably well kept streets, is not to be considered as sewage at all, and there are few cases where it may not safely be delivered into water-courses near the town.

The removal of subsoil water and surface water being considered as a proposition by itself, it is generally only a question of economy whether or not to deliver it in connection with the foul wastes of the community.

Considering also, by itself, the question of dangers to health and life, while we may disregard surface water we cannot disregard subsoil water. Where this exists within the depth to which cellars are dug, it is very apt to constitute a somewhat serious sanitary objection. This, however, is not what we have chiefly in view in discussing problems of municipal sanitary drainage. Reference is made chiefly to the removal of the more or less obvious, but always dangerous, nuisances caused by our methods for treating waste organic matters.

All such matters which are of a putrescible character, whatever their origin, should be completely and entirely removed, not only from the house but from the town, before they have had time for their decomposition to begin. In their fresh condition they are rarely a source of danger, and, with the single exception of fæcal matter, they are rarely a source of foul odors. If we can deliver them into a sufficient volume of water to smother the excrement that they contain, and can get them out of the town promptly and efficiently, the whole problem is solved so far as our interior work is concerned.

This may seem a very simple statement to make, and it may seem to suggest a very simple remedy for our trouble. It becomes less simple when we consider what it involves.

It involves such a reconstruction of every defective water closet, or trap, or waste-pipe, or house drain, as shall ensure absolute cleanliness in all of these items. That is to say, it involves a reconstruction of the drainage work of ninety-five out of every hundred houses in the town.

It involves such a reconstruction of local drains as will tighten every joint, and keep their water inside of them, to perform the cleansing duty for which it is intended, instead of leaking away into the ground and leaving the solid parts of the sewage to lie in the drains and rot, for want of a current to carry them forward.

It involves the abolition of every cesspool and privy vault in the town.

It involves also the abolition or reconstruction of every sewer of which the water-way is so large, or so rough, or so leaky, that it will not carry its whole flow all the way to the outlet. It involves also some means for preventing the accumulation of coarser matters near the upper ends of the lines, which is inevitable even in the smallest and best made sewers along those portions where the natural flow is not enough to wash away the solid substances as fast as delivered.

In short, it involves a system of house

and town sewerage of which there are very few examples anywhere in the world.

Having secured such a system of house drainage and local street sewerage as will accomplish this end completely, there arises the question, which is to be decided largely by considerations of cost, save where this is overborne by the considerations of disposal, whether to carry away the surface water from points of local accumulation and the foul drainage from houses, etc., by one set of conduits, or by two. If there is a safe point of outlet, not too far removed, where in cold weather and in warm, in wet weather and in dry, the whole volume can be safely delivered, as it could be if it were run into the Mississippi river, for example, it may be cheaper, and if it is cheaper it will be better to deliver the two together.

Where such a point of outlet does not exist, or where it can be reached only at great cost, owing to the necessity for building large brick storm-water sewers for a great distance: or where sewage is to be treated chemically or agriculturally, for its purification; or where it has to be pumped, there it will generally be found best to get rid of the storm water by the shortest route, and in the cheapest way, and to go to the expense of laying conduits for pumping or for purification only with reference to the smaller and more regular flow coming from house drains only.

Even where there is no objection to increasing the sizes of all the sewers throughout all the streets, and delivering storm water into them directly, the increased size required for storm-water sewers indicates the policy of using such sewers only so far as to the points of accumulation of surface flow already referred to.

We all know, of course, that the method of sewerage that is practically universal in Christendom is to take all of the water of light rains, and as much as we can compass of the water of heavy rains directly into the foul-water sewers. The statement is often made that all necessary considerations of economy will be satisfied, so far as the size of the outlet or the cost of purification or pumping is concerned, by establishing storm-water overflows by which when it rains more than a very little the surplus flow will be delivered directly at some near point of outlet, only the minor flow passing on through the smaller main.

There is a fallacy here, to which attention may well be called. The volume of sewage discharged from houses varies with the time of day and considerably with the day of the week. It is ordinarily very much larger for a little while during the forenoon of wash-day than at any other time during the week. If the storm overflow system is used, of course the overflow point must be placed high enough not to allow this wash-day flow to escape. It must surely be high enough to carry all such volumes safely forward.

As outlet sewers are generally constructed with a view to a large future increase of population, the overflow must be placed high enough to provide for such population, often many times the number that will have to be dealt with for some years to come. Now, that point being fixed and the volume of sewage that will always be sent through the larger and smaller outlet sewer being regulated by the height of that point, we find, in practice, that all of the water of moderate rains, continuing sometimes for days together, has to be carried to the distant outlet for pumping or for purification; and a simple calculation will show that outlet provision ample for the mere house drainage must, because of the need for carrying and treating all of the storm-water that can run below the overflow point, be enormously increased, at a corresponding increase of cost for pumping and purification, where these are needed.

I have purposely avoided all references to details of sewerage work, and have attempted nothing more than to lay before you a few cardinal points which it may seem worth while to consider and to discuss. More it would hardly be possible to do on such an occasion as this.

THE FINANCIAL ASPECT OF SANITATION.*

BY ALFRED LUDLOW CARROLL, M. D.,
Of New Brighton, N. Y., late Secretary and Superintendent Vital Statistics
S. B. H., N. Y.

Political economists tell us that all advances in civilization are founded on "enlightened self interest" rather than on philanthropic altruism, and the most superficial observation of human nature corroborates this axiom as regards the average taxpayer and his legislative representative in this Republic. The "practical" business man is generous enough in giving his money voluntarily for charitable purposes, but he strenuously protests against any increase, however small, of the demands on him as a member of the body corporate, unless he can see a prospect of a profitable return from the investment. This is peculiarly the case in the matter of sanitary improvements, concerning which the arguments that have usually reached the public ear have been directed more to the emotional than to the commercial instinct. The sturdy citizen whose robust constitution saves him personally from endemic disease, will resist any expenditure for general hygienic protection of the community, although he will willingly contribute much more than his share of such expenditure for hospitals and asylums, to care for his neighbors who succumb to preventable maladies; and the only way of inducing him to subscribe his "ounce of prevention," is to convince him that the actual money profit of saving life and health, is as great as that from the most successful speculative venture in the stock exchange, or the most absolute monopoly in a railway franchise, and much more certain than either.

No argument is needed to support the self-evident proposition that the worldly prosperity of a commonwealth, is the aggregate of the average prosperity of its component citizens. As Jarvis, in his excellent essay on the Political Economy of Health [Fifth Rep. S. B. H., Mass.], has happily phrased it, "Every increase of individual estate, every dollar earned, and every new value created, is so much addition to the commonwealth, and every detraction from the wealth of individuals, every dollar that is expended without return, wasted or squandered, every extinguishment of any value, is so much taken from the public capital." It is obvious that if a man earn more than the cost of his subsistence, the surplus is so much added to the general fund, while, on the other hand, if he cost more than he earns, the deficit is a burden on the community at large; or, to put the statement in conventional politico-economical form, the accumulating wealth [of the community, as of the individual], is the excess of production over consumption. It is further clear that the premature death of a productive individual, like the destruction of any other source of revenue, represents the loss of a certain amount of income, and that his withdrawal from productive industry through sickness, signifies the suspension of such income plus the additional cost of attendance during his illness. With a knowledge of some of the facts collected by vital statistics, and a good table of "present values" of annuities, these losses can be calculated with as much accuracy as any of the act uarial data on which insurance premiums are founded, a simple formula being that "the present value of the person's future earnings, minus the necessary outgo in realizing those earnings, is the present value of that person's services." [Farr.] That is to say, if a person whose earnings exceed the cost of his subsistence by $500 a year, die twenty years earlier than the natural termination of a healthy working lifetime, the loss to the community is the present value of an annuity of $500 for twenty years, i. e., at 6 per cent., $5,735. The money-worth of the individual, therefore, varies with his earning capacity and his living expenses; and with the postulate that the average productive period of life is between the ages of 20 and 70, we have a basis for tabulating the profits of each class of incomes. According to Farr's elaborate computations, while the value of a Norfolk agricultural laborer at the age of 25 is £246, the value of a professional man earning £300 a year, is about £3,000, or, as he otherwise puts it, "the loss or injury of a carriage full of curates might not exceed £30,000, while the loss on the life of two bishops might raise claims for a larger sum. "In the death of a minor, our loss is not only the present value of a "deferred annuity" representing the probable earnings of his manhood, but also the amount spent in his maintenance during unproductive childhood. It is, of course, manifest that the earner who has a probability of forty years of future industry, is worth more than him whose "expectation" is but twenty years. Knowing the relative numbers at different ages and in different occupations, it is an easy though tedious task to determine the average of these various factors, and to reach the mean value of the individual. From the immense mass of statistics at Farr's disposal, he demonstrated that "the minimum value of the population of the United Kingdom, men, women, and children, is £159 a head; that is the value inherent in them as a productive, money-earning race." In North America, with its larger wages and higher rate of interest, this estimate should be increased in the proportion of rather more than 30 per cent., and without adducing the differential calculations, which any one may make for himself, from a comparison of Farr's statistics with those available here it may be broadly stated that the minimum value of a human life in the United States is at least $1,000.

---

*Read before the State Sanitary Convention, held in Philadelphia May 12th, 13th and 14th.

To the unthinking mind, a reduction of the annual death rate per 1,000 of population from 22 to 21 may seem almost insignificant; but when viewed from the above pecuniary standpoint, it will be seen to mean, even in a town of 10,000 inhabitants, an annual saving of ten lives, equivalent to a gain of $10,000, which would yield 10 per cent. profit on a capital investment of $100,000; and if we extend the same estimate to a population of 50,000,000, we get a revenue which at the same rate would justify an outlay of $500,000,000: in other words, we, if the cost of the needed sanitary improvements to produce this small decrement in the death rate required a contribution of $10 from every inhabitant, the return would be greater than could be realized from almost any other investment. But neither is the cost so large nor the profit so limited. With far less expense, the mortality has been vastly more reduced, and the duration of life increased by millions of working years in a generation. Thus, in France the average length of life has been augmented ten years within the last century, an aggregate of about 400,000,000 years for the total population; in London the death rate per 1,000 has been reduced from 50 in the eighteenth century to less than 22, a profit of over 100,000 lives a year; and there have been numerous instances within the past half century of diminutions of from twenty to thirty per cent. in death rates. As a farther item to be remembered in balancing our public ledger, it must be borne in mind that for each death 26 persons may be assumed to be seriously ill, aggregating two years of sickness; and that on an average the cost of supporting and treating each patient is half as much as he would earn if well. Now, the ideal natural death-rate of a perfectly organized community, where old age should be the only cause of mortality, would not exceed 10 per 1,000; but without aiming at this Utopian model, sanitarians are agreed that a ratio of 17 for even large cities, and 15 for the population at large, ought to be practically attainable; and whosoever will examine the official records of the majority of urban or rural corporations may count the enormous gain to be made by such a reduction.

Among the preventable diseases which should be most easily controlled are the commonly known infectious zymotic maladies, and these, in the mortuary returns of different places, constitute from 13 to 24 per cent. of the total mortality. As regards typhoid fever and diarrhœal disorders, experience has over and over again shown that proper methods of sewage disposal and pure water-supply have sufficed nearly to abolish them. Indeed, the whole class of "filth diseases" could be banished from our nosology by ordinary attention to sanitary cleanliness. Malarial fevers, which in many districts cripple productive industry in greater proportion to their mortality than any other ailments, may be virtually exterminated by efficient soil-drainage, and not alone these, but consumption, which in temperate climates plays the largest part in the death roll [causing in the State of New York 14 per cent. of the whole mortality], has been shown to be intimately associated with dampness of soil, and has in several recorded examples been diminished fifty per cent. by drainage works. A similar reduction in New York, including the comparatively small mortality from malaria, would be tantamount to an annual revenue of six and a half million dollars, to say nothing of the enhancement of the value of land, if only for agricultural purposes, an enhancement which has often reached tenfold of the original valuation. Aside from the disorders directly dependent upon infection or local insanitary conditions, whether municipal, domiciliary, or industrial, public hygiene ultimately much widens its preventive range by increasing bodily resistance to, and diminishing the fatality of other classes of diseases, even of constitutional or developmental types, and by raising the general standard of health increases productive capacity.

To take more definite figures, Simon proclaimed some years ago that about 120,000 preventable deaths occurrred annually in England and Wales, and Chadwick supported the same result; in France, by a similar computation, the number may be placed at about 250,000; in Spain, about 190,000; and in the United States, Billings reckoned from the census of 1870 that the annual deaths from causes known to be preventable were "certainly over 100,000," an estimate which may now probably be raised to over 160,000, and he adds, "if we were to consider theoretical possibilities rather than actual probabilities, these figures might be doubled." If to such lethal losses we add twice as many years coincidentally withdrawn from production by serious illness, the aggregate appals the imagination, and dwarfs the most destructive ravages of war to insignificance. Setting aside all sentimental considerations, and regarding it only in its financial aspect, it means that in this country alone an annual loss of $208,000,000, and an annual cost of more than $24,000,000, at the very lowest estimate, are taken from the public fund by preventable death and illness, and that the saving, or, more properly speaking, the gain of this sum would yield cent. per cent. profit on a capital investment of $232,000,000. Can the most visionary dreams of speculative ventures offer so alluring a revenue?

ELEVEN MONTHS.

BY BENJAMIN LEE, A. M., M. D.

Secretary State Board of Health of Pennsylvania.

It is now less than a year since the State Board of Health of the Commonwealth of Pennsylvania was organized. The first year of any new department of governmental work must necessarily be to a great extent preparatory, experimental and constructive. It is not to be expected that a State Board shall spring Minerva-like, full-armed, from the brain of the legislative Jove. It would be the preference of the Board, therefore, not to call attention to the work accomplished during the first few months of its existence, but unobtrusively to pursue its labor of educating the people and their public servants in the practical details of sanitary science until the little leaven shall have leavened the whole lump. But the American people are proverbially impatient of results. Even before its numbers were complete, the Board began to be inquired of as to what it was doing to justify its establishment. A *resume* of its labors up to the present time is therefore not uncalled for.

In brief, it has established friendly relations and the interchange of ideas and results with the National Board of Health, the State Boards of all other States of the Union and of Canada, and the Health Bureaus of many European countries. It has communicated officially with the Boards of Health, Sanitary Committees, and Borough Councils of all cities and boroughs in this State. It has been the means of forming boards of health in places where they did not exist, and of aiding those already formed to systematize and enforce their regulations. It has devised a model ordinance on sanitary matters for the guidance of all municipal authorities. It has drawn up a set of Model Rules for Boards of Health, including full instructions for the establishment of special hospitals for emergencies, which may be adopted by any board existing or about to be formed, with such modifications as local circumstances, as charter provisions or previous legislation may require. It has formulated circulars containing precautions against cholera and small-pox, and regulations for preventing bone boiling establishments, slaughter houses, and other offensive industries from becoming sources of danger to the public health, and has distributed these to all city and borough councils, to all superintendents and teachers of public schools, to all jails and charitable institutions, to all newspapers, to all physicians, to all clergymen, to all judges and supervisors throughout the State, and to upwards of a thousand leading manufacturing firms in the city of Philadelphia. In its distribution to public schools and charitable and reformatory institutions it has obtained the kind cooperation of the Superintendent of Public Education and of the "State Board of Lunacy and Charities," which it desires gratefully to acknowledge. It has made inspections of the water supplies of two cities and one borough at the request of the councils of the same. It has made inspections of aggravated nuisances existing on the outskirts of three large cities and several boroughs at the request of the boards of health or councils of the same, the nuisances being beyond their own jurisdiction. It has successfully prosecuted and lodged in jail an individual who was poisoning the air of a lovely village for the sake of compelling his neighbors to buy his property. It has divided the State into inspection districts, and appointed inspectors for the same. It has instituted an inspection of the mining regions of the State with a view to improving their sanitary condition. It has investigated numerous outbreaks of contagious disease in different parts of the State, personally or through its inspectors, including two of small-pox, both of which, with the prompt and efficient aid of the local authorities, assisted in one instance by the Board of Health of Philadelphia, were successfully nipped in the bud. It has communicated with the officers of rail road and other transportation companies in regard to the transmission of infected passengers or goods, has appointed special inspectors on such lines of travel, and authorized the destruction of several lots of foul clothing found upon their premises. It has caused scientific reports to be made of outbreaks of epidemic disease in the State, particularly that at Plymouth, Luzerne county. It has carefully watched the importation of foreign rags, and insisted on their disinfection before being sorted by the operatives. It has sent delegates to the meetings of the American Public Health Association, and the annual conference of State Boards of Health, and contributed material to their transactions. It has made inspections of the sanitary conditions of six soldiers' orphan schools. It has devised forms for the registration of marriages and of practitioners of medicine and surgery, and distributed them to all prothonotaries and clerks of orphans' courts throughout the State. It has carefully inspected the quarantine system of the Delaware River and Bay, and corresponded upon the subject with the national authorities. It has, by personal interviews and correspondence, consulted with Stste and county legal officers in order to determine its own exact status and powers. Its committees are now at work upon the following subjects: Preparing a compend of the laws of the State on all matters affecting the lives and health of her citizens; preparing a system of organization for rural boards of health, arranging plans for the thorough investigation of all public institutions and schools, and preparing circulars on all contagious diseases. It has prepared for the press, and has ready for distribution, its first annual report. Finally, it has held, in the city of Philadelphia, a Sanitary Convention, opened by his Excellency the Governor of the Commonwealth, presided over by the distinguished Provost of the University of Pennsylvania, attended by representatives of State Boards of Health and eminent sanitarians from all parts of the country, before which essays of the deepest interest were read. It has now established an official organ, through whose columns it purposes to give these valuable papers, with other similar information to the public, and which, under the efficient editorial supervision of the chairman of its Committee on Preventable Diseases, a gentleman of long journalistic experience, it believes will be a most important instrument in fulfilling the imperative duty imposed upon it by law, "*to disseminate information upon these and similar subjects among the people.*"

OUR SOUTHERN VISITORS.

In returning thanks to all who so kindly helped to make our Sanitary Convention a success, the State Board desires in an especial manner to thank those gentlemen who at the sacrifice of much time and inconvenience, so cheerfully came to help us.

The Annals of Hygiene.
THE OFFICIAL ORGAN OF THE
STATE BOARD OF HEALTH OF PENNSYLVANIA.
PUBLISHED MONTHLY.
Subscription, two dollars ($2.00) a year in advance.
Address all communications to
JOSEPH F. EDWARDS, M. D.,
224 S. 16th Street,
PHILADELPHIA, PA.

MEMBERS OF THE BOARD.
Edward Wm. Germer, M. D., Erie.
Pemberton Dudley, M. D., Philadelphia.
David Engleman, M. D., Easton.
J. F. Edwards, M. D., Philadelphia.
Rudolph Hering, C. E., Philadelphia.
J. H. McClelland, M. D., Pittsburgh.
Benjamin Lee, M. D., Philadelphia.

Editorial.

TO OUR SUBSCRIBERS.

In this, our first issue, we present five of the papers that were read before our late Sanitary Convention. In succeeding numbers the balance will be published, in addition to which we have made arrangements to keep the journal constantly supplied with sanitary literature of the highest order of merit. Our monthly issues will average forty pages of reading matter, giving thus four hundred and eighty pages annually for two dollars. To bind these numbers will cost about seventy-five cents, so that for two dollars and three-quarters, those interested in the subject will procure annually a volume containing a large amount of original sanitary information (to be procured nowhere else) as well as a general survey of the sanitary literature of the world. The expense of this publication is not assumed by the State, therefore we would ask those interested to help it along. If each one receiving a sample copy will subscribe, and will induce at least one friend to do the same, it will help us greatly.

WHY?

Why do we publish a journal? Because, as Dr. Lindsley, of Connecticut, so wisely says, the chief duty of State Boards of Health for some years to come will consist in educating the people in hygiene.

Why do we publish a journal? Because so many have asked us where they can obtain the proceedings of our late Sanitary Convention. Here is to be found our answer. We have on hand nearly forty papers that were read before our late Convention, all of which will be published, and published *exclusively*, in this Journal. We wish to educate the people in the practical uses of the teachings of sanitary science; hence we are born. We are not suffering from an attack of *ephemeral* sanitary fever; we are afflicted with a slow, substantial, almost typhoid-like malady, that will last as long as does our Board. We are determined that if the people are not made to realize the value of preventive science, it will not be the fault of the State Board of Health of the Keystone State.

This is our "*raison d'etre*," and this we take to be sufficient reason for presenting this journal to the people.

HYGIENE IS MANLY.

So it is, and it is also womanly. *Worcester* defines manly to be "Becoming a man," and womanly to be, "Becoming a woman." Bacon says that "Man is an animal as well as a brute, *but he is something more*." We say that a Man is he who has always the conscious knowledge that he does right to the best of his ability, and the same definition applies to the woman.

"To do right to the best of his ability," a man *must* live a sanitary life; let him but follow his natural instincts (we say *natural*, and when we say natural, we do not mean *perverted*) and he is all right. Premature mortality among the lower animals is comparatively rare, because *instinct* guides them, while it is fatally freqent among mankind, because the dictates of instinct are unheeded. To be manly, a man must live as a man, and to live as a man he must observe the teachings of hygiene, therefore do we come back to the proposition with which we started, that "Hygiene is Manly."

SEWERS FOR "THE BLIND."

We do not mean those who are physically, but those who are sanitarily blind. If *such* blind people cannot help themselves, then they ought to be helped. An ordinance has been recently introduced into Councils in this city providing for an expert Commission to inquire into, and report upon, the best method of giving Philadelphia a proper sewerage system. Such an ordinance should be passed. The people look to Councils, and if the people are blind to their own best welfare, then does it become doubly, aye trebly, important that those to whom the people look should *not* be sanitarily blind, for the time is fast coming when such persons will be found to be also *politically* blind. There is now a *Wolf* (e) in the fold, who it is feared, may do harm (to those who fear him), but the influence of the prohibition carnivora will be (in a short time) but as a drop in the bucket compared with the overwhelming influence of the hygeian omnivora, who will come ready and able to devour all who do not make "*the health of the people the supreme law.*"

QUERIES AND REPLIES.

We have elsewhere stated that one of our chief reasons for starting this journal is to educate the people in the science of hygiene. The fundamental basis of all education is *question* and *reply*. When the young boy asks his father what is a lake, a spring, or a river, he is but commencing his education. When one man asks another how to prevent typhoid fever or small-pox or diphtheria or any disease, he is the inquirer, he is the one seeking education, and he who makes the reply is the teacher, is the one imparting information. So, in any branch of human knowledge, there are two participants, the seeker and his respondent. None of us, even the oldest and most experienced sanitarian, is *too old to learn*, and so we have decided that a portion of our journal shall be devoted to queries and replies. The doctor knows that the "old woman's" remedy will often do more than his most approved therapeutics; so the crude query of a farmer or citizen who knows nothing of hygiene, may give a thought to a Pasteur, a Koch, a Billings, a Sternberg, a Chancellor, a Waring, or a Gihon. Dr. Rauch or Dr. Baker, Dr. Lee or Mr. Brooks, Dr. Carroll or (let us stop) may derive an inspiration from the apparently most commonplace query. Why the sanctuary lamp in the old Cathedral of Pisa *swung*, to the ordinary mind seems easy of explanation; but to the immortal brain of Galileo it was a suggestion of imperishable possibilities. Let us but recall *the ever-to* be-remembered remark of the dairy-maid to Jenner, and we have said enough to induce all who read these lines to understand why we ask for *queries*. The *replies* will be made in every instance by gentlemen well qualified to answer each particular query.

SMALL-POX: A REMARKABLE FACT.

It is with the greatest satisfaction we place on record the remarkable fact that there has not been one case of small-pox in Philadelphia during the past year; to be absolutely accurate, we say that from the 18th day of June, 1885, to the 18th day of June, 1886 (for it was on the latter date we received our information from the Health Officer), there has not been a single case of small-pox. Such a statement, when we realize that our population is now within fifteen thousand of one million, is calculated to gladden the hearts of sanitarians; for it can be very clearly demonstrated that this unparalleled immunity from the most loathsome of diseases is the direct and inevitable result of a definite cause.

To those who would say that cases of small-pox might have occurred without their being reported at the Health Office, we would say, in the first place, that there is a fine to be imposed by law, and (what is more practical) a fine that *is* imposed upon all physicians who neglect to report such cases. This is one argument why physicians feel inclined to report such cases; another argument is, that during the period in question twenty-six cases have been reported to the Health Office as small-pox, which upon investigation have proven to be chicken-pox, herpes, rupia, and the like. Two facts remain :

1. We have not had a case of small-pox for one year.

2. There is inducement for (*fines*), and there is evidence of desire on the part of physicians to report such cases.

Why, then, have we not had small-pox?

To our way of thinking, the explanation is very clear. If the Health Officer of the city receives in his morning mail notice of a case of small-pox (suspected), he at once sends word to the vaccine physician of the district to visit the suspected house and neighborhood (remember that we say *neighborhood*), and vaccinate all who are not evidently well protected, by this operation, against the disease. The agents of the Board are at once dispatched to thoroughly disinfect the suspected premises, and to inquire into and insist upon the premises being placed in proper sanitary conditions. Later in the day the proper officer, when he reports, is sent to investigate the nature of the case reported. The result is, that whether the case be small-pox or not, vaccination and disinfection are secured. The neighbors of the doubtful case are sufficiently frightened to cheerfully submit to the necessary precautions; and as a grand and glorious result this great city has passed one whole year without a case of small-pox. This can be said of very few large cities, if of any, in the world. There never has been a time in the history of this city when her preparations to battle with this disease were so good, and we see that *we have* accomplished that which sanitarians always tell us *can* be accomplished. We have *dirty* water, at least; we have badly paved streets; we want sewers; *but we have not had small-pox.* We emphasize this fact, because it is encouraging to those who labor for the public good, and it is the presentation of such facts that will enable us to convince the people of the beneficence of sanitation. In this connection it might be well to say that the cost of small-pox in Tennessee during the past five years is estimated by the State Board of Health to be $141,619.91.

◆

"THE JOHN WELSH CONCOURSE" vs. "THE JOHN WELSH MUSEUM OF HYGIENE."

From the *baby* State Board of Health of Pennsylvania comes a *wail.* From the 900,000 voices of his late fellow citizens comes a demand that a suitable monument shall be erected to the memory of our late most distinguished citizen, the Hon. John Welsh. Let us imagine our late Minister to England *in the flesh*, what would he say? Would he advocate an *Arch*, that might be destroyed at the will of some ruthless barbarian, as is now being done with one of the most sacred relics of the religion of *civilized* Rome; would he ask for a *Concourse*, much as he loved and worked for the Centennial grounds, so little appreciated by his (ought to be) grateful fellow citizens, that they have been allowed to fall into even worse decay than has the Villa of Adrian of Rome or the far-famed gardens of the Quirinal Palace, apparently so delightful, but so neglected by the present civil opponent of the hero of "*Ben Hur's*" original great question of the time of the *wise men*, who, wise as they were, *could* not *tell* us what time and experience has *demonstrated* to us. To drop metaphysical language, we would say, does *John Welsh* (for of such a man we can only use *two words*, for the use of *spirit* or *memory*, or any such *flummery* would seem like nonsense)—does John Welsh want a *Concourse?* No doubt he would be pleased to see his pet grounds beautified; but as he was an eminently *practical man*, we feel that he would be more than pleased to have a more practical expression of his fellow citizens' opinion of his worth. JOHN WELSH was the *first* man to contribute towards and to encourage the late Sanitary Convention in this city. To the editor of this journal, he personally (within one week of his lamented death), expressed himself as heartily in accord with the movement, and only regretted that he was not then young enough to actively aid our Board; saying to our editor, "If you can put me back twenty years, I will serve you with pleasure, for your cause is a glorious one; but verging on eighty-one years of age, I am forced to decline duties that would be most agreeable, because I fear I lack the vitality to properly fulfill them."

Such were the words, within one week of his death, of *Philadelphia's great citizen.* Do they teach us? Do they point a lesson? We could answer, but we hesitate; we realize that preventive science is but of slow growth. For some to us unaccountable reason, the people seem to forget (for we know they *realize*) that an ounce of prevention is worth a pound, or *tons*, of cure. They will build monuments; they will endeavor to raise a million-dollar monument to Grant; they will erect bronze statues to our heroes—all good and proper (for he who neglects the honor due a hero, in peace or war, deserves himself to be neglected)—but do they not at the same time lose sight of the most *sublime hero*—the hero, or we should say, the heroine, to whom John Welsh would pay homage. Teach the people "*how to live.*" Tell the people how to live long and healthy lives. Such, we are sure, would be the burden of the song, from the eternal shore, of the late John Welsh. "Give them free my beautiful park." "Allow them to be gratified and benefited by the glories of nature," but above all tell them how to rightly live. "I speak from another world, and I say to you, to you, Mr. Childs, and to you, his collaborators who desire to raise a monument to the memory of my dust—I say to you, do not waste your appreciated appreciation of my services, do not spend my fellow-citizens' money in raising a *time* monument, that, like the Colosseum of the Romans, will *rot*; like the glorious baths of Diocletian and Caracalla and Constantine the Great, will remind my posterity of the mutability and instability of human affairs; remember that principle *lasts*, while material goes; remember that while the baths of Constantine in Rome are now wonders to the visitor, wonders made so, because history tells us of their former greatness, the Church of St. John Lateran, built by the mother of this same Constantine and first dug by him yet stands, older and grander than St. Peter's, and why? Because it embodies a *principle*:

it was the effort of the youthful Constantine to teach the world, unknown and unrecognized by himself, the truths of a new revelation. So I say to you, do not spend the price of my fellow citizens' appreciation in creeting a monument that time will demolish. Do not, much as I appreciate your good intent—do not, I say, put some earth, some flowers, and some gravel, where a *few* of my people, whom I loved so well, may see it, and may possibly think of me—do not do so, I say. Rather let my fellow-men show their appreciation of my services by doing something *practical;* in other words, let them encourage a *principle;* and to be practical, it requires money to inculcate principle (unfortunate that it should be so, but so it is), and I echo back from my honorable grave, "Mr. Childs' would not a 'John Welsh Museum of Hygiene,' that would found and encourage a *principle*, much more greatly redound to my honor than a 'Concourse,' good as it may seem."

Notes and Comments.

THE "HESSIAN" SANITARIAN.

That earnest lover of the goddess Hygeia, Dr. William Germer, of Erie, the distinguished president of the State Board of Health of Pennsylvania, at the recent sanitary dinner in this city, drew a graphic picture of the time when we feared and trembled at the Hessian, as compared with the *Hessian* of *Rochester* (N. Y.) of to-day, who has done so much to advance the cause of the goddess to whom he pays homage. In calling attention to this comparison, we would also call attention to the fact that Mr. Henry Lomb, of Rochester, N. Y. (the Hessian in question), has offered the sum of seventeen hundred and fifty dollars in prizes on sanitary subjects, to be awarded under the auspices of the American Public Health Association. The subjects are as follows:

I. *The Sanitary Conditions and Necessities of School Houses and School Life.* One prize, $500.

II. *The Preventable Causes of Disease, Injury and Death in American Manufactories and Workshops, and the best Means and Appliances for Preventing and Avoiding them.* One prize, $500.

III. *Plans for Dwelling Houses:*

(*a*) A plan for a dwelling house not to exceed in cost, exclusive of cellar, eight hundred dollars. Prizes: First, $200; second, $100; third, $50; fourth, $25.

(*b*) A plan for a dwelling house not to exceed in cost, including cellar, sixteen hundred dollars. Prizes same as for (*a*).

Accommodations to be provided for families consisting of five persons.

Particulars as to the essays, specifications as to plans for dwelling houses, and conditions as to the competition, may be obtained by addressing Dr. Irving Watson, Secretary Am. Pub. Health Association, Concord, N. H.

Let all sanitarians most earnestly pray that Divine Providence may send us some more such "Hessians."

◆

HYGIENE IN SCHOOLS IN HUNGARY.

At an Educational Conference, recently held in Buda-Pesth, under the presidency of M. Trefort, the Minister of Public Education, the following regulations were established. Every middle-class school is to have a medical officer, who will receive an annual salary of 200 florins in schools where a complete course of instruction is given, and 100 florins in other schools. He must examine every pupil at the commencement of each scholastic year, and keep a constant watch over their health, and must give special attention to the prevention or eradication of infectious diseases. He will also give advice during gymnastic exercises. He will also keep a watch over the instruction in general; and, if he observe any deleterious influence in operation, with regard either to the whole school or to individual pupils, he will bring the same under the notice of the director of the school. In the complete schools, he will give instruction in hygiene, for two hours each week, to those pupils of the higher classes who may desire to receive it, the subject being treated in an easy and popular manner.

THE SANITARY CONDITION OF TONQUIN.

In a work on Tonquin by Dr. Challan de Belval, Chief Medical Officer of the French Expedition, which has just been published in Paris, a considerable space is occupied by a description of the hygienic—or unhygienic—conditions of the country, which is stated to be damp and unhealthy. The houses are also unsanitary, the clothing of the people insufficient, and their food "detestable," so that their low and debilitated condition is easily accounted for. Malaria is very frequent, and is met with in very grave forms, more often in woody and mountainous districts than in the delta. The most common and most fatal disease after malaria seems to be dysentery. The author saw many cases of abscess and hydatid of the liver. As to cholera, it may be said to be endemic, with frequent and severe epidemic exacerbations. Typhoid fever proved fatal to many of the French soldiers. Small-pox is very prevalent, and is said to kill more than half the children. Tuberculosis, scrofula, rheumatism, and leprosy are all common. Syphilis, however, is rare among the natives, except in the vicinity of great European centers.

MASSACHUSETTS STATE BOARD OF HEALTH.

After its period of eclipse, the territory that encloses the "Hub" of the universe again has its State Board. *Of course* it has, we say, for progressive civilization demands it, demands protection to public health, and in part answer to such demands, these Boards abound.

The members of the new Board are appointed for different periods, as one member goes out of office each year, but all subsequent appointments are to be for seven years. The appointees are as follows: For seven years, Dr. Henry P. Wolcott, of Cambridge; for six years, Dr. Elijah U. Jones, ot Taunton (homœopathist); for five years, Mr. J. H. Appleton, of Springfield (a manufacturer); for four years, Mr. T. K. Lathrop, of Beverly (lawyer); for three years, Dr. F. W. Draper, of Boston; for two years, Mr. H. F. Mills, C. E., of Lawrence; and for one year, Mr. James White, of Boston (a retired merchant).

PRESERVATION OF PUBLIC HEALTH.

Dr. R. F. Stone thus truly writes in the "*Report of the Indiana State Board of Health.*" Public health can only be advanced by organized effort upon the part of municipal, State and National authorities, and fully empowered by law to enforce the requirements of their important trusts. The members of all organizations, to secure these results, should be chosen entirely with reference to ability and integrity. Children in all public schools should be educated to understand the elemental principles of physiology and hygiene. Legislators should be educated to understand that the prosperity of our nation depends upon the health of its citizens. Engineers and architects should be educated to understand the most perfect sanitary arrangements for sewerage and ventilation in the construction of all residential or public buildings. Let ministers remember that nature's inexorable laws are not suspended in this world for man's benefit, and that petitioning for a day of fasting and prayer, to induce the Heavenly Father to save them from pestilence, is inexcusable, if not blasphemous ignorance, as long as towns and cities are reeking with those causes and sources of contagion which breed such maladies.

On the great plains of plague-stricken Asia, centuries before the Christian era, the query: "Shall such ills come by chance?" was then answered—

> "Like the sly snake they come
> That stings unseen ; like the striped murderer
> Who waits to spring from the Karunda bush,
> Hiding beside the jungle ; or like
> The lightning striking these and sparing those,
> As chance may send."

Shall the intelligent clergyman of to-day meet this problem with no more rational interpretation than the ancient Buddhists in the earliest dawn of the world's history? We trust not. But it is the physician, after all, who, by long experience and the acquisition of the accumulated knowledge of the past, knows concerning the causes and prevention of disease, and to him alone is in reality delegated the high and sacred obligation to preach the gospel of health. All accomplished and successful physicians are in these days also intelligent sanitarians. And recognizing that the health of communities, and even nations, often depends upon the health of individuals, they, with unselfish devotion to public interest, seek to inculcate among "the laity" all knowledge that experience and observation have taught relating to personal and domestic hygiene, in order that the greatest good may result to the greatest number. Under this policy, results of the most important character are constantly being obtained in what is termed public hygiene. Even by the most rudimentary or imperfect methods of sanitation, which as yet alone are practicable, the most terrible forms of disease have been banished. The *plague* and *leprosy* have been practically obliterated in every civilized country, and other contagious and infectious diseases have assumed a much milder form. With more efficient sanitary measures all of the so-called *zymotic* and *specific forms* of disease, which have so scourged the world, will certainly become more and more rare, if they do not altogether disappear.

POISONOUS GLOVES.

The *Provincial Med. Journal* says: "We have recently had several cases of a peculiar herpetic eruption about the lips of children, and which we have satisfied ourselves were due to cheaply dyed gloves. The children wearing these gloves rubbed their mouths with them. The rash could be produced at will. When the gloves were taken off and not worn for some time, there was no rash. When, on the other hand, the gloves were worn, and the children repeated the practice, the rash returned. Clearly it was a case of cause and effect. Owing to competition, manufacturers endeavor to cut down the expense of production by using the cheapest form of dye; and the public support them by buying cheap products. There is not much economy in this, however. The old proverb should be remembered—cheap and dangerous.

Send in your subscription that you may receive *all* the papers of the Sanitary Convention.

The Annals of Hygiene.

Vol. I. PHILADELPHIA, AUGUST 1, 1886. No. 8.

Communications.

ON THE SANITARY SIGNIFICANCE OF SPORADIC TYPHOID FEVER.*

BY PEMBERTON DUDLEY, M. D.,
Of Philadelphia, Member State Board of Health of Pennsylvania.

It is not the intention, in this paper, to offer any facts or inferences that are not already well known to all enlightened physicians and to many other intelligent people. The whole subject of typhoid fever—its origin, its propagation, its progress and its tendency, are familiar enough to those who make special study of such subjects; but there are few infectious zymotic diseases, upon which the general public is more in need of enlightenment than this prevalent and dangerous malady, and especially is this true as regards its cause and origin. The fear of infection inspired by small-pox and scarlet fever is less generally and less acutely felt in the presence or imminence of this less actively contagious disease, and the means employed to avoid the former are not thought so necessary as safeguards against the latter.

But the gravest misconception of typhoid fever by the general public, consists in an entire misapprehension as to the specific nature of the agency that produces it. Indeed, if we judge from conversations frequently heard in reference to it, we might almost be led to infer that the disease comes on spontaneously, and without assignable cause. Physicians know, of course, that such things cannot be. Driven to the point by close questioning, they all admit the specific character of its cause, yet how frequently do they seem to manifest very little interest or desire to learn just how any particular case had its beginning. A patient attacked with variola, or measles, or scarlatina, elicits at once the professional inquiry, "Where did he get it?" "How did this unfortunate occurrence happen?" "Where and when did the exposure occur?" Are these questions always, or even generally asked, respecting a case of typhoid fever; and if not, then why not? I am becoming pretty well convinced, from the observations of the past few years, that this latter disease can be traced to a definite cause in nearly all cases, at least in our large cities.

It can do no good to inquire particularly how the present crude and erroneous notions respecting the probable and possible and almost multitudinous agencies, ascribed as causes of typhoid fever, came to exist in the public mind. It is enough to know that these notions must have sprung out of the narrower professional knowledge of the years gone by; but in the light of present information, professional failure to disseminate more correct views can hardly be excusable.

---

* Read before the Pennsylvania State Sanitary Convention at Philadelphia, May 14, 1886. From advance sheets of Annual Report.

The notions of the ancients respecting the causes of epidemics are sometimes held up as evidence of the dense ignorance of those early times, and of the exceeding incapacity of even the world's brightest minds to reason back from results to causes. We smile at their fears lest some one of the deities, of which they possessed so abundant a supply, should vent his anger by the out-pouring of some dire plague upon the hapless people. But when we pride ourselves upon our freedom from these superstitions, let us for just a moment remember that Milton's allusion to the comet that, "from his horrid hair, shakes pestilence and war" originated on *this* side of the Dark Ages, and that Webster's book on comets as the cause of epidemics is less than a hundred years old. Perhaps it may also promote in us the virtue of humility, if we recall the fact that twenty-nine years ago an epidemic of typhoid fever in the National Hotel at Washington, which threatened the lives of President Buchanan and his Cabinet Ministers, was ascribed to the infernal machinations of the opposing Whigs. Right in our own day it is not at all unusual to hear cases of typhoid fever attributed to over-work, either physical or mental, to loss of sleep, to mental anxiety, to general debility, etc., etc., and we—we physicians, I mean—fail to embrace the splendid opportunity thus presented, to read a brief and pertinent lecture on cleanliness. We allow these popular delusions to remain undisturbed, and overlook the fact that in the light of present science they are scarcely less irrational than those which attributed the invasion of an epidemic of typhoid fever to a comet or an earthquake, to the anger of the gods, or the disappointment of the Old Line Whigs.

It ought not to be difficult to convince people of ordinary intelligence, that a disease whose essential features are of so constant and unvarying a character as are those of typhoid fever, cannot be reasonably supposed to originate from inconstant and diverse causes, but that its cause must be essentially the same in all cases, or as the doctors express it, it must have a "specific" origin. Its unvarying course and succession of changes, its well defined stages, its equally definite duration, its constant anatomical lesions, in intestine and spleen and skin and mesentery—such an invariable succession of phenomena, such a uniform series of manifestations,—must have *one* cause, and *not* a dozen. Over-work, mental anxiety, night vigils, may open the gates of the body to the invader, may increase its susceptibility, but can cause the disease, never! These facts, so familiar to all physicians, ought to be as firmly impressed upon the public mind.

That the greater proportion of cases of typhoid fever occurring in our large cities are due to an infection derived from preëxisting cases, needs no argument to commend it, and certainly can be scarcely doubted. The same thing is undoubtedly true of numerous cases in which the cause remains undiscovered. But I have never been quite willing to reject finally and totally the view of the late Dr. Murchison, that under certain favoring conditions the disease may originate *de novo*, perhaps from some decomposition-product generated or modified in human excrement, or in decomposing organisms. Neither am I discouraged in the least by the assertion that such a view implies the possibility that small-pox, syphilis, etc., may also originate anew. If we deny this possibility we must logically admit the proposition that these contagions first arose from some natural conditions and processes such as cannot occur again in the world's life-time, or else we must ascribe to them a miraculous origin either during the history of our race, or else amid the creative glories and purities of the Garden of Eden. The instances in which typhoid fever invades the isolated homes of rural districts, in most of which, no possible communication can be traced with any other case either near or remote, are too numerous to be explained on the theory of an invariable contagion. Discussion of this question, however, is scarcely in place in this paper, or indeed in this convention, unless it can first be shown that upon its decision rest the sanitary questions pertaining to typhoid fever. Fortunately it happens that I am not placed under any such obligations. All writers agree that the emanations from decomposing night-soil and disintegrating organic tissue, do in some way or other increase the prevalence and virulence of the disease under consideration. Even if they never, under natural conditions, constitute the essential cause of typhoid fever, they undeniably increase, and very greatly increase, the susceptibility of those exposed to their influence. Hence our duty as sanitarians seems to be scarcely affected by these etiological questions upon which our pathologists are divided.

The most important lesson to be learned by the public in reference to typhoid fever is that it is a "filth disease"—not sometimes, not generally, but *always*. And perhaps the next in importance is, that while the production of the disease probably requires that the morbific agent shall be brought into contact with the alimentary mucous membrane, as in food or drink, it is possible for the salivary fluids in the mouth and throat to absorb the poison from the atmosphere, and thus become the medium of its transmission to the stomach. There is also a third lesson, of no less value to us, viz: that various articles of food, and especially milk, water and other fluid foods, possess the same property of absorbing the fever poison from the atmosphere and thus becoming the vehicles of its introduction into the system.

My own observations are fully in keeping with the view that the absorption of the poisonous emanations by the salivary secretions, and by food stored in pantries and kitchens, but especially the latter, furnishes the explanation of nearly all the so-called "sporadic" cases of *true* typhoid fever occurring in this city. In a large proportion of the cases it will be discovered on examination, that odorous emanations from kitchen drains, but more frequently from privy vaults, are easily perceptible to the senses in the rooms where food is stored and where it is being prepared for the table. In most of the observations I have made on this subject, it has appeared to be the privy vault, rather than the drain, that has been responsible for the evil. Let me describe two instances in which, as I think, the cess-pool was at fault. But remember, I do not offer these cases to *prove* my point, but only to *illustrate* it.

In September, 1885, I attended a boy aged seventeen, suffering with a mild yet pronounced typhoid fever. The house was fronted on a narrow lane which terminated in a blind extremity, and which, like all other lanes of that peculiar character in this city, was closely packed on both sides with brick boxes, called "houses," by way of courtesy. Back of the house a three-foot alley ran parallel with the lane, but immediately after passing my patient's back yard, it turned away at right angles toward another and parallel street. Little houses backed against this alley-way on both sides of its long arm and against one side of its shorter arm, but each house had in its rear a little narrow space—called a "yard"—which was large enough to hold privy a vault, and not much more. The arrangement was such that within ten or twelve feet of my patient's kitchen window there were four cesspools, and within thirty feet there were ten of them. The whole vast, infernal machine was completely shut in from lateral air-currents, and the noisome odors were distinctly perceived in every room of the house. I learned of no fact leading to the inference that the patient's disease had been contracted elsewhere, and indeed it seemed almost unnecessary to search for such evidence. Strange to say, there was not any more sickness in the immediate vicinity than is generally found in such localities. I am perfectly willing to attribute to these cesspools, *not* the transmission, but the *origin* of my patient's sickness.

The other case that I shall mention is destined to become historical. In August, 1885, I was ordered by Dr. Lee, the Secretary of our State Board of Health, to investigate the sanitary condition and management of a certain house, located on a corner of one of our widest avenues in the northeastern quarter of the city. Dr. Lee's letter contained suggestions as to the scope, and hints as to some of the directions which my investigation should take. I made repeated visits to the locality, and spent many hours in tracing out every possible clue to the information I was seeking, and was forced to limit my conclusions to the condition of the premises alone.

The house extends in its length the entire depth of the lot, but does not occupy its entire width. Originally the yard, running alongside the house, had a length of some forty feet, but a one-story kitchen was built, which jutted out from the side of the house, cutting this yard completely in two. The front portion of the yard has a front of twelve and a depth of seventeen feet. The back portion has been still further encroached upon by a frame dining-room extending its whole length, so that it is now reduced to the dimensions of fifteen feet by three. At the rear end of this narrow space is a cesspit, which encroaches three feet upon the length of the space, reducing it finally to thirty-six square feet—just one-fourth of the minimum size now demanded by law. The privy is ornamented by a sham ventilator, which rests upon, but does not penetrate, its roof. The pit is some three or four feet in depth. Backed against this privy is a similar edifice, the property of the next door neighbor. This also opens upon a three-foot wide court running around the corner of the aforesaid neighbor's dwelling. The little 3x12 back yard we are describing is bounded on one end by the one-story kitchen, and on the other end and the two sides by two-story buildings. The house has two windows in each of its two stories, and the kitchen has a door—all opening into this cesspool yard. The two lower windows of course belong to the dining-room. The exhalations from the privy are exceedingly offensive, as might be supposed. They are shut off from lateral air-currents, and find their way in large quantity into the kitchen, dining-room and chambers. Indeed, there is little other chance of escape for them. The whole arrangement looks as though it might have been planned as a hot-bed of zymotic disease. Let us see with what success.

In August, 1883, a young blacksmith came to board in the house. He was soon seized with typhoid fever. His physician immediately sent him to the Episcopal Hospital, whence he returned recovered. Nearly a year later, in May or June, 1884, another new boarder, a huckster, was attacked with the same malady. He was at once transferred to the hospital, whence he returned safe and sound in August. (During this summer the cesspool was "cleaned," *i. e.*, cleaned after the manner and methods in such cases usually made and provided. In other words, it was nearly emptied of its contents.) Soon after the recovery of the second case, a third new boarder, a street car conductor, became ill with typhoid fever, went to the hospital, and recovered. Here were three cases in about sixteen months, and it would seem that their prompt removal to the hospital, and the intervals that elapsed between the cases, ought to preclude the probability that one transmitted the disease to the others, though it is undeniable that the typhoid germ may maintain its virulence for a long period.

The fourth victim was not a boarder, but a visitor. After spending at the house, the Christmas holidays of 1884, he returned to his distant country home on the mountain side, where he soon sickened with typhoid fever. His dejecta, which were unusually abundant, found their way into a little stream which flowed past the house, and thence into a supply reservoir below. For the subsequent history, ask poor, plague-stricken Plymouth. When Philadelphia sent to the hapless inhabitants of that pest-ridden town, money and medicines and food and nurses and physicians, it was not charity; it was but a small installment on an immense debt. Had there been no defective cesspool in Philadelphia, there would have been no typhoid fever epidemic in Plymouth.

In her typhoid fever mortality, this city has a bad record. She also has cesspools. The ground on which she stands is fairly honey-combed with them. They poison the soil beneath our homes, they pollute the air we breathe, they contaminate the water we drink and the food we eat; they hurl disease and death in their most loathsome forms into our circle of loved ones. The privy-vault, even at its very best, in any city or town, and even when very near a rural dwelling, is a dangerous, insufferable, abominable nuisance. There are degraded savage tribes who keep in their huts for long months the putrefying bodies of their dead; but how does it accord with our ideas of the intelligence, the taste, the refinement of this age, that the great mass of our people keep, within a few feet of their hearthstones, whole tons and tons of festering, reeking rottenness? Whatever we may do with the sewers, let us—in the name of decency and cleanliness and health and life—let us banish the cesspool.

The sanitary significance of typhoid fever is not over-work; it is filth. The disease does not essentially mean the result of the wear and tear, the hurry and worry of life; it means filth—filth every time—noisome, reeking, disgusting filth. And one of the practical questions of this age is whether we physicians shall have the boldness—and true physicians are always bold—to stand up in the presence of our stricken patients and tell them so, in order that safety may be secured to others.

Our City Board of Health has adopted a rule requiring that all cases of typhoid fever shall be reported as are other infectious diseases. These reports should be followed up in every case by a thorough and complete expert examination of the house, or if necessary the school-room, store or workshop where the victim may have contracted the disease. But to do this, the Board must have money.

THE PROGRESS OF SANITARY SCIENCE IN THE STATE OF MISSISSIPPI DURING THE PAST TEN YEARS.*

BY W. F. HYER, M. D., OF HOLLY SPRINGS, MISS.

Member Mississippi State Board of Health.

A paper concerning the progress of Sanitary Science in the State of Mississippi may appear irrelevant on the present occasion; but this country, although so vast in extent, is so closely knit together by the great arteries of trade and travel which link one border with another, that no epidemic of contagious or infectious disease derived from a foreign country can gain a foot-hold in our borders without endangering the health and welfare of every city and every State in our common country.

---

* Read before the Pennsylvania State Sanitary Convention. From advance sheets of the Annual Report.

It is not beyond the memory of man when the yellow fever ravaged the city of Philadelphia, and although a better system of quarantine and sanitary regulations renders your city less liable to infection than in former days, yet under favorable circumstances, you have no guarantee that you may not again become victims to the yellow plague.

The main defence of your city against cholera and yellow fever lies in the strict enforcement of your maritime quarantine laws, for should the path of an epidemic approach you from the interior, it would almost be a matter of impossibility, considering the many avenues of travel and commerce connecting you with the back country and other sea-ports, to provide a successful and efficient quarantine without establishing an absolute policy of non-intercourse with neighboring cities and localities, unless your State Board of Health should be amply endowed with both funds and authority to enable them to take most efficient measures to intelligently guard every avenue of approach to your borders. A policy of non-intercourse with neighboring States would not be more disastrous to your commercial interests than would the presence of an epidemic of infectious or contagious disease to the lives of your communities; and it therefore behooves your State Board of Health, in conjunction with your State Medical Association, to make every legitimate effort to bend the minds of your legislature to the importance of the interests at stake, and convince them of the necessity of arming your State Board with sufficient authority and funds to enable them to meet any emergency. It is not right that you should be held responsible unless your hands be strengthened. Yet should disaster ensue to your people from epidemic disease the responsibility would be laid on your shoulders. None better than myself know the difficulties that lie in the way of obtaining legislative action in the line of sanitation, and none realize better the ease with which such action may be obtained when proper steps are taken toward that end. The great mistake that is usually made in that direction by those having sanitary legislation at heart, is in applying to members of the Legislature *after* they have been elected and met in an organized body. For six years the Medical Association of the State of Mississippi annually approached the Legislature with their bills and memorials *after* their organization, and for six years their efforts were *nil*; for there is no person in the broad earth who is more filled with self-importance than he who has been elected to represent the dear people in the councils of state.

Our association finally hit upon the happy idea of approaching the embryo statesman before he is fully fledged—while he feels that he is only a small potato and few in a hill, while he is endeavoring to win friends favorable to his advancement—and experience teaches that if you make approaches at that time he readily falls a victim to your wiles. Enlist the doctors of your state in an effort for sanitary reform, induce them to demand pledges from candidates for legislative honors in advance of their election, and the pledges will be given and kept, and you will be placed on the high road to success and in a position to do honor to them who granted you authority and power. After noting then what power you have to protect yourselves, another subject of interesting inquiry arises when we consider the fact that the Asiatic cholera has again made its appearance in Spain, and that the yellow fever is again epidemic in South American ports, whether in the problem of how to prevent a spread of these epidemic diseases into the interior of the United States, should they gain a foothold in our ports of entry, any factors are now present which were absent in 1878, and previous years. At that time when an epidemic disease made its appearance in New Orleans, all means of resistance had been utilized and the disease was free to spread itself along lines of travel, without any effort being made to stay it. The inhabitants of centres of population in the interior bowed their heads to the impending calamity with the indifference which characterizes the conduct of the eastern fatalist. We desire in this paper to call attention to the spirit of enlightenment which has come over the people of the South in this as in other matters, not only in Mississippi, but in all the other States adjacent to and connected with the Gulf of Mexico by paths of commerce and trade; and we can perhaps give a fair illustration of the present condition of affairs in all this region by describing the gradual but sure progress of the State of Mississippi in the line of sanitary education.

A history of the advance of sanitary science in the State of Mississippi during the last ten years is, to a great extent, that of the adjacent States of Tennessee and Louisiana during the same period. Sanitation is a result of civilization, of first importance in centres of dense population, yet tardily considered and with difficulty sustained among sparsely settled rural communities. The State of Mississippi having no minerals within her borders, no manufactures of importance, with no large centres of population, is essentially an agricultural State, and therefore, to a certain extent, free from unsanitary conditions, which in other localities give impetus and importance to the strict consideration of sanitary rules and conditions. Ten years ago the medical profession and the authorities of Mississippi were as profoundly indifferent to the operation of sanitary laws as were the people of Pompeii and Herculaneum to the eruptions of Vesuvius at any period preceding the great calmity which overwhelmed them.

At that time we relied upon the inefficient quarantine laws of Louisiana as they were operated in New Orleans, and of the State of Tennessee and city of Memphis, to protect us from the visitation of epidemics from foreign sources; for while the law of the State provided for the appointment of Boards of Health by municipal and county authorities, the appointments were seldom made; and when they were, the officials appointed were without authority, pay, or influence.

In 1876 a committee of the Mississippi State Medical Association formulated a bill, and by memorial presented it to the State Legislature for enactment into law, which provided for the establishment of a State Board of Health, whose members should be selected by the State Medical Association and appointed by the Governor, and whose term of office should be six years, one-third retiring every two years. The bill further provided that the Governor should appoint upon the nomination of the State Board of Health a competent medical man as health officer of each county, whose salary should be fixed by the board of supervisors of the county, said salary not to exceed that of the county superintendent of public education. This bill, after being rendered almost inert by amendments, was passed by the Legislature and signed by the Governor. It, as passed, provided for no pay for the services of the Board of Health or their necessary expenses. Neither was any fund placed at their disposal for quarantine or sanitary purposes, nor was any authority granted them, except to write papers on sanitary subjects, to be printed in their annual report to the Legislature at the expense of the State. Under these embarrassing circumstances the Board of Health annually spread their storm signals throughout the State, and the State Medical Association kept things hot in the Legislative halls through their memorials and committees. No progress however seemed to be made in instructing the average legislative mind as to our sanitary necessities until the fatal and wide-spread epidemic of yellow fever of 1878 broke upon the people with all the suddenness and power of a western cyclone, destroying thousands of lives, bankrupting our most prosperous merchants, and carrying ruin to almost every industry, and terror into almost every household. Then it was that the inquiry was instituted throughout the State as to why the warnings and promptings of the organized medical profession had been spurned and disregarded, and it awakened the Solons of the State to the nature of their responsibilities, which resulted in the enactment of a statute giving the State Board of Health ample power and ample funds to take such measures as they might deem necessary to prevent further calamities from that direction. Not only was a valuable lesson taught the law-makers, but the Board of Health was convinced that the so-called quarantine system and health laws of Tennessee and Louisiana were a fraud and a delusion.

This law, however, was not enacted until 1880, the Legislature only meeting biennially. And during the year 1879, when the epidemic raged so virulently in Memphis and threatened a visitation to New Orleans, the Mississippi State Board, through pecuniary aid rendered it by the National Board of Health, was enabled to institute such measures as enabled us to keep the infection from our borders; and to the aid and assistance given us at that time is to be in a great measure attributed the unswerving loyalty and friendship rendered the National Board in its hour of adversity by the State Board of Health and Medical Association of the State of Mississippi.

After the epidemic of 1879, a spirit of antagonism displayed itself on the part of the Louisiana State Board of Health as against the National Board, and a contest ensued between them, in which the boards of health, both State and municipal, in the Mississippi Valley, as a general thing arrayed themselves with the National Board on account of the fact that a belief was prevalent that the State Board of Louisiana was disposed to conduct their quarantine with an eye more to their trade with tropical ports, than to the sanitary interests of the people of the Mississippi Valley. This belief was intensified in the struggle by the National Board to make Ship Island a quarantine station rather than the Mississippi river station below New Orleans, for to this proposition the Louisiana Board made most strenuous opposition. The result of the contest was that the National Board of Health was shorn of its powers by the cutting off by Congress of its appropriation, leaving it in the condition of Samson after Delilah had made a raid upon his locks.

When the Boards of Health of the valley realized that their former friend and stay was powerless for further good, a feeling of uneasiness prevailed which resulted in the organization of the Sanitary Council of the Mississippi Valley, which was composed of representatives of State and municipal boards of health, and representatives of railroad corporations and any other organized body interested in the prevention of the spread of epidemic disease, who took sufficient interest in the matter to send representatives. The conception and organization of this powerful body, of which the Mississippi State Board was a component, was to a great extent due to the earnest and untiring efforts of Dr. Jno. H. Rauch, the accomplished secretary of the Illinois State Board of Health. This body, sustained by an earnest public sentiment, had sufficient financial backing to enable it to fill the place made vacant by the retirement from active life of the paralyzed National Board, and during the period of its active life, the people rested secure in a consciousness of its power and ability to prevent the introduction and spread of epidemic disease into the interior States. The feeling of distrust of the Louisana State Board and want of harmony between it and the Boards of the interior has happily passed away under the able administration of Dr. Joseph Holt, who by his wise and conservative course has won the confidence of all interested in sanitary matters. During the regime of the Sanitary Council of the Mississippi Valley, the efficiency of the Mississippi State Board of Health was considered an important factor of the problem of how to prevent the spread of epidemic disease into the interior, should it gain a foot-hold in New Orleans; for all the railroads leaving New Orleans on the east side of the Missisippi River traversed the State of Mississippi, and on the borders of that State was the first defensive line against its further progress. That the Sanitary Council placed confidence in the diligence of the Mississippi State Board is a matter of history. Whether or not that confidence was deserved the future must determine, since happily the occasion for demonstration has not yet arrived, with the exception of the fact that during the years 1882, '83 and '84, there were between seventy-five and eighty outbreaks of epidemic small-pox in different parts of the State, one of which was in Vicksburg and one in McComb City, two of the most crowded centres of population, the others mostly in the thickly settled negro centres in the Mississippi river bottoms. In none of these instances did the disease spread outside of the limit confining it when taken charge of by the board, and in no case could the infection in one place be traced to another in the State, but all were started from centres of infection imported from other States.

I have been actuated to discuss the subject matter of this paper as exemplified in the organization and present efficiency of the Mississippi State Board of Health, from the fact that with the presence of the cholera in Europe and yellow fever in the tropics, the eyes of the country are necessarily turned upon the city of New Orleans as a port of entry through which foreign epidemic disease may obtain a foothold in the United States, and in that case the safety of the interior depends largely upon the efficiency and potency of the Mississippi State Board, for, as before intimated, all the lines of communication of New Orleans with the interior on the east of the Mississippi river penetrate initially the State of Mississippi. Texas and Arkansas guard the lines of communication with the interior on the west side of the river. Mississippi guards the Mississippi river, with the State of Tennessee and city of Memphis in reserve.

The State Board of Tennessee and the Municipal Board of Health of Memphis are veterans in sanitary warfare, and will give a good account of themselves when the occasion requires. It is a matter of interest then to know on what means of protection the interior States may rely if epidemic disease should gain a foothold in the great southern port of entry; and if energy, rare topographical advantages, complete authority and an abundant appropriation can avail, the risk of the spread of epidemic disease through the territory of Mississippi is hereafter reduced to a minimum.

THE DISPOSAL OF HUMAN EXCRETA BY FIRE.*

BY W. S. ROSS, M. D.,
Of Madisonville, Kentucky.

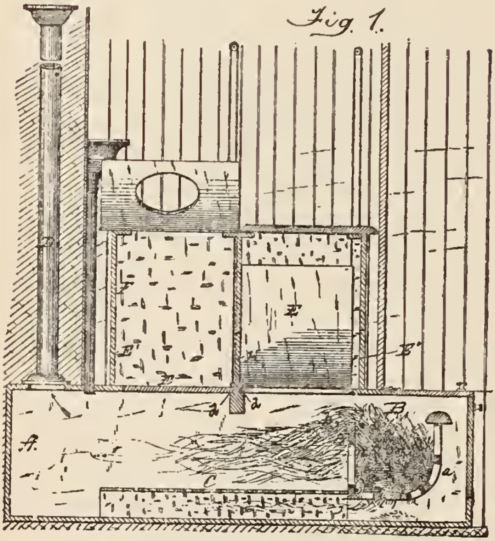


Fig. 1.

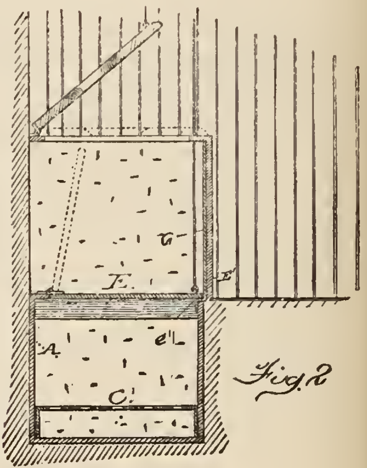


Fig. 2

"Figure 1 represents a longitudinal view of the apparatus and attachments, and figure 2 is a transverse view of the same." "The combination consists, first, in an attachment for a privy, a horizontal metallic casing constituting the depository for the fecal matter, provided with the hinged lids and fire-chamber; second, the attachment for a privy, consisting of the horizontal metallic casing, with the perforated false bottom *C*, bridge-wall *B*, and grate-bars *C*, arranged in about the same horizontal plane with the hinged lids *E* and door communicating with the grate-surface; third, the combination of the horizontal casing *A* with the perforated false bottom *C*, grate-bars *A*, bridge-wall *B*, hinged lids *E*, privy box, with hinged seats and the connecting means."

"The seat-boards should be made double, the grain of the wood reversed, and glued together; this will prevent warping."

"The hinged lids being connected by a metallic cord, and the furnace lids *E* being heavier than the seats, they work automatically. The furnace lids being heavier than the seat, as soon as the weight of the body is removed from the seat the furnace closes, and so remains except when being used; the odor is thus confined to the furnace, and forced to escape through the flue or draft pipe and into the air above the building. The front (*G*) of the privy box is lined with metal, preferably of sheet copper, which extends down beyond the line of the casing a short distance into the depository, and is intended to carry down the liquid matter that may be impinged against it."

---

*Read before the Pennsylvania State Sanitary Convention. From advance sheets of Annual Report.

PHYSIC-TIPPLING AND MEDICINE-BIBBING:

A WARNING AGAINST INTEMPERANCE IN THE USE OF DRUGS.*

BY FRANK WOODBURY, M. D.,
Of Philadelphia, Professor of Therapeutics, Materia Medica and Clinical Medicine in the Medico-Chirurgical College.

Sanitary science differs from the ordinary practice of medicine chiefly in regard to the subjects with which it deals. Curative medicine has to do with the individual, and considers everything from the standpoint of the individual. Sanitary science, on the contrary, cares less for the individual than for the type; it is concerned with the welfare, mental, moral and physical, of the race, and the condition of the community in relation with civilization; it is chiefly interested in the production of that large and healthy population which is a nation's true source of wealth and hope of permanent prosperity. It is very deeply interested in the habits of individuals on account of the powerful influence for good or evil which they may exert, by heredity, upon the generations which are to follow.

Man has reached the present high state of development, which he enjoys in the most highly cultivated nations of the earth, by slow and painful progress, committing many mistakes, but steadily rising out of the ashes of former self to nobler and better life. Accompanying this high state of development are influences which constantly tend to cause reversion to a lower type. It is especially against such agencies producing deterioration of the race that sanitary science wages unremitting warfare.

Among the habits which certainly cause physical degradation is the constant use of narcotic and so-called stimulant drugs. With the great problem of intemperance in alcoholic liquors, society is now engaged; and as attention has been so constantly directed towards it, I need not further concern myself with it at present. Nor will I discuss the evil effects of tobacco upon the human frame; with these you are familiar, or at least know where to find abundant information if you desire it.

The object of this paper is to direct public attention to a habit which has insidiously crept into our life as a people, and which in my estimation has attained sufficient proportions to warrant consideration at such a conference as this.

Not long ago, while in a Chestnut street drug-store, I observed a richly-dressed but poorly-nourished woman approach the soda-water fountain and ask for a glass of soda-water containing bromide of potassium. She was evidently nervous, but the thought occurred to my mind that the natural way to overcome the nervousness (or nervelessness) would have been to alter the habits of life which produced the morbid condition, rather than to overwhelm what little vitality might be left in her body with nerve sedatives. Inquiring of the drug clerk, I found that it was a common habit for customers to ask for medicinal substances in soda water. Leaving out of question the possible ill effects of the soda-water itself, I found that potassium bromide, aromatic spirits of ammonia, soda mint, sodium bicarbonate, acid phosphate, tinctures and elixirs, were in very frequent demand. In another drug store, I saw a prescription calling for a mixture containing chloral, posted up behind the counter. I inquired why it was placed there, and was informed that it was merely for convenience, as it had been refilled over a hundred times. Here was a case in which a patient having received a prescription for temporary use, had continued taking it upon his own responsibility, certainly, in my opinion, reducing himself to a physical wreck and inviting early death. I have been informed by druggists that should a physician prescribe a mixture containing alcohol, if it be at all palatable, the order to re-fill it will come again and again, and yet again.

---

* Read before the Pennsylvania State Sanitary Convention. From advance sheets of Annual Report.

We all know how the opium habit is formed—few there are who realize what a hold it has taken upon the people. The drinking of ether and similar anodyne mixtures is not uncommon, and too often prepares the way for indulgence in grosser forms of intemperance.

This is not intended to be a statistical paper, or I would proceed to show by figures how the demand for remedies, acting upon the nervous system particularly, has within comparatively few years experienced a large increase. The bromides only a few years ago were but little used; now it is estimated that at least 200 tons are used every year in this country alone. Of chloral hydrate, introduced in 1869 by Liebreich, it was said that in America and England alone, a ton was consumed each day, eight years ago: it cannot be less now. Nor will I speak of the vast amounts of the preparations of cinchona, of opium and of mercury; or of the alkalies, iodides, and digestive ferments, which flow in a steady current from the stills of our manufacturing pharmacists down the throats of a confiding community.

But this, although sufficiently large, is a comparatively small part of the medication of the masses. Try to form an idea of the capital invested, and the fortunes made in the sales of patent medicines. Does any one contend that all this supply is needed to meet a natural demand? Why is it, the sanitarian asks, that man, the paragon of animals, requires so much more medicine to keep him alive than his more or less domesticated brethren? Why is it that civilized man in the 19th century, consumes larger quantities of narcotic drugs — morphine, chloral, bromides, ether, and chloroform—than his forefathers? What is to be the result upon the population in the 20th century? Can we not see abundant evidence of the bad effects of over-medication in the weakened digestion and impressionable nervous system, which have become almost universally recognized as characteristic of American life?

The anarchists the other day in Chicago, who wrecked a drug store and revelled in wine of colchicum, and paid the penalty for their indulgence with physical suffering and death, are but an exaggerated illustration of what is going on around us every day.

In saying this I hope I will not be misunderstood. This is not a tirade against the use of medicine, but a warning against its too prevalent abuse. It is not a denunciation of doctors, but on the contrary it will be my endeavor to show that the taking of medicine—and especially the administration of medicine to young children—is a matter worthy of sober, serious consideration; and, as far as possible, should be undertaken only by competent medical advice.

Among the causes for the enormous drug trade in this country, is to be counted, undoubtedly, the over-crowding of the medical profession. Until within a few years there were practically no restrictions in this State upon the practice of medicine—the law did not require a doctor to be either a scholar or a gentleman. Thousands of half educated or entirely uneducated men, furnished with cheap diplomas, were set loose to prey upon the community; and drug stores sprung up at nearly every corner.

In addition to this free dispensaries were started in all our large cities, and the public systematically trained to ask for medicine as regularly and naturally as they do for their daily bread.

But this is not all. The patent medicine advertisements in the public prints warn us that hundreds of thousands of dollars are spent annually in the effort to induce our fellow citizens to purchase and consume medicines which otherwise they would not buy. I do not mean to say that all proprietary medicines are necessarily worthless and injurious; but I do say that which I do know, that the greater part of the demand for them is artificial, fictitious, and is due to persistent advertising.

Another reason for the extraordinary demand for medicine is of a different kind, and has its roots in the minds of the people. We are impatient and illogical. We do those things which we should not do, and leave undone the things which we ought to have done. This is pre-eminently applicable to our eating. A large proportion of this community is suffering constantly from indigestion in some form or other. Does this lead men to carefully study their capacity for digestion of different articles of food? No; they prefer to keep on eating and drinking the very things which make them sick, and then call upon the druggist for aid. The growth within a few years of the demand for digestive ferments is astonishing. Pepsin and pancreatine in various forms, constitute a large proportion of the daily sales of city druggists.

Let us stop for a moment to consider what the effect of artificial digestion must be. If the pepsin be introduced by the mouth our stomachs will naturally cease to secrete it, and consequently, according to physiological law, will lose the function. We have largely lost the use of our grinding teeth because our ancestors ceased to eat roots and to crack nuts, and took to boiling their meat and vegetables, and now it appears that we are fast losing our stomachs also. It has been said that were it not for the constant influx of fresh blood from the country, large cities would be depopulated in a few generations. This I believe is most true in those communities where the greatest amount of medicine is consumed. Our babies are fed with artificial foods because the defective vitality of the mothers forbids nursing them; when they suffer with indigestion and cry, they are drugged with soothing syrup and paregoric; if they venture to cough they are dosed with squills and antimony; and in between the doses they are given castor oil, worm-lozenges, gingerbread, catnip-tea, soda-mint and calomel, until they are large enough to drag their sickly little bodies to school; then they have cod liver oil and iron and quinine to keep them going; and when nature kindly gives them a fever in order to give them some rest in bed, they are dosed *ad nauseam* by officious friends and attendants. In later life their weak physical frames and poor digestion are scarcely equal to the demands of modern life, and there is constant resort to the whiskey bottle to supply a delusive feeling of strength and vigor. There is a sober truth underlying the statement of the toper, who gave as his excuse for drinking, that "he was brought up on the bottle and never got weaned." Is it any wonder that in civilized communities men scarcely live out half their term of life; dying so many or that can repeat the words of the Patriarch, "Few and evil have the days of my life been?" One-fourth of all the children born in civilized countries die before they reach the fifth year of age, and the proportion is even greater in large cities. Among the recognized causes of weakened vitality in children I wish to place the abuse by parents of medicines acting upon the nervous system, and especially alcohol, tobacco, opium, chloral and the bromides.

It is not time to look for some improvement in this regard? A great change has taken place in our views of disease within comparatively few years. Recent studies into the causation of diseases has shown us that they are largely external in their origin, and the symptoms which were heretofore regarded as the disease itself, are in reality only evidences of the reaction of the system against the disease. Modern medicine, therefore, instead of combating the symptoms, aims at the cause of the malady, and endeavors to aid nature and not to oppose her. We now know that morbid processes are essentially conservative, and that inflammation instead of being a condition to be dreaded and combatted, is nature's reaction against an irritant; it is not the cause but the effect of disease.

As sanitarians, we would teach the public that they should bear with patience the ills that flesh is heir to; that disease is very largely affected by mental states, and that physical troubles are made greater by thinking about them. Medicine is a two-edged sword, and, if capable of doing good, is also capable of doing harm; unfortunately, the harm is not limited to the individual, but affects the future of the race. Physic-tippling and medicine-bibbing is simply a form of intemperance. The taking of medicine is a matter of grave importance, and should only be done by competent medical advice, and should not be continued longer than the emergency demands.

I would make an especial plea for the children, who are daily sacrificed to the mania for medicine-giving. I was called not long ago to see a delicate little girl, seven years of age, whose ignorant and brutal father had administered eleven cathartic pills. Such instances are not rare in the experience of physicians practicing in the cities. Deaths are constantly occurring from the administration of nostrums to young children: how much permanent ill health is produced we may only surmise. We have laws regulating the sale of certain well known poisons, but no law regulating the manufacture and sale of so-called patent medicines—containing colchicum, opium, alcohol, digitalis, antimony and a legion of other poisonous drugs—which the public consume in immense quantities to the evident detriment of health.

In conclusion, for the purpose of checking this evil, I would recommend:

1. The examination of all proprietary medicines by a government or state commission of experts, which shall have power to permit the sale of such as are harmless or especially likely to prove servicable, and to prohibit the sale of all which are liable to do injury, and particularly those which are found to be worthless and frauds upon the public. Such a commission was appointed by the Japanese government several years ago, and has been found to be of great service in that country.

2. The instruction of the public to properly estimate drugs, and to regard every unknown medical agent as dangerous and endowed with capacity for harm. Let them endeavor to escape the caustic criticism of a Moliére upon those who "pour medicine about which they know little, into bodies about which they know less, in order to cure disease about which they know nothing at all."

218 South 16th Street, Phila.

CARPET-BEATING IN SUBURBAN GARDENS.

The beating of carpets in suburban gardens, and, we may add, in the back yards and courts of houses generally, is a great nuisance. The noise is irritating to invalids especially, and to the multitude of sensitive folk. Moreover, it is not a sanitary process by any means, this accumulation of dirt in carpets, with periodical disseminations of the disgusting and perhaps noxious filth in the atmosphere. It would be wiser far to adopt measures for cleansing carpets in properly heated chambers, than to scatter the dust they contain broadcast.

The Annals of Hygiene.
THE OFFICIAL ORGAN OF THE
STATE BOARD OF HEALTH OF PENNSYLVANIA.
PUBLISHED MONTHLY.
Subscription, two dollars ($2.00) a year in advance.
Address all communications to
JOSEPH F. EDWARDS, M. D.,
224 S. 16th Street,
PHILADELPHIA, PA.

MEMBERS OF THE BOARD.
Edward Wm. Germer, M. D., Erie, President.
Pemberton Dudley, M. D., Philadelphia.
David Engleman, M. D., Easton.
J. F. Edwards, M. D., Philadelphia.
Rudolph Hering, C. E., Philadelphia.
J. H. McClelland, M. D., Pittsburgh.
Benjamin Lee, A. M., M, D., Sec'y, and Executive Officer, 1532 Pine St., Philadelphia.

Editorial.

A WORD OF EXPLANATION.

We have been asked by several subscribers, why we called our July number "our *first* issue," yet the first page is No. 145 and on the cover appears "Vol. I, No. 7." In a word, we would explain that the July number was the *first* issue as the "official organ of the State Board of Health." Six previous numbers have been issued, but the July number really begins a new volume, a *new* departure, as it were, hence we spoke of it as our "first issue."

TO OUR SUBSCRIBERS.

We desire to return our sincere thanks to those who have so generously come forward with their subscriptions to help us in our undertaking of educating the people in the principles of sanitation. The educated public has responded liberally to our efforts, and while we heartily thank them, we would at the same time remind them that it costs a considerable sum of money to issue this journal, and we would earnestly ask them to help to enlarge our subscription list.

THE PENNSYLVANIA STATE SANITARY CONVENTION.

At the regular meeting of the State Board of Health, held in Harrisburg July 14th, the Committee of Arrangements of the late State Sanitary Convention made its report, from which we extract the following that may interest our readers.

"The Committee would report that in their opinion the Convention was a great success, considering the fact that it was the first effort of the kind that had ever been made in this State. A glance at the programme will show that there were visitors present (many of whom read papers) from every section of the country, and the Committee desires to place on record its heartfelt appreciation of the kindness of those who came from so far to help the first Convention of this Board. While the personal attendance was not as large as would have been desirable, yet when we consider that the weather was very unfavorable (it rained nearly all the time), an audience at one time of nearly five hundred people (as estimated by the manager of the Opera House) was very gratifying. But while the personal attendance was comparatively light, yet all the prominent newspapers of Philadelphia furnished such full reports of the proceedings (as evidenced by the scrap-book in the possession of the chairman) that we can safely say that there are very few persons in the State of Pennsylvania who are ignorant of the fact that this Convention was held. So also, the prominent papers of other States fairly noticed the Convention, and the Committee again desires to place on record its appreciation of the exceedingly handsome manner in which the press of the country, and particularly of the

State of Pennsylvania, and most particularly of the city of Philadelphia, seconded its efforts. The Convention was visited during its sessions by most of the distinguished ladies and gentlemen whose names appear on the programme as Vice Presidents, and it is particularly gratifying to record the fact that all the sessions were well attended by ladies. The Committee desires in an especial manner to return its thanks to his Excellency, Hon. Robert E. Pattison, Governor of this great Commonwealth, for his kindly interest in the Convention and for his most happy and valuable opening address, an address commended on all sides for its sound sense and applicability. Our Governor made time from his pressing duties to sit through one whole session of the Convention, and the Committee feel that the great interest in their work that was displayed by the Chief Executive of this Commonwealth should be clearly placed on record, that future generations may honor him who so ably and so earnestly upheld the State Board of Health in the days of its weakly infancy.

"To Dr. William Pepper, the distinguished Provost of the University of Pennsylvania, the President of our convention, who stole time from his pressing duties to open our sessions and to eloquently portray the great importance of our work, we desire to return our sincere thanks.

"To the Hon. Erastus Brooks of New York, who, though an invalid, journeyed in most inclement weather to deliver the 'Annual address' before the Board; to Dr. Charles Smart of the United States Army, who favored us with an immortal paper on 'Water Supply'; to the eloquent and forcible Dr. A. L. Gihon, who made such an earnest and convincing appeal for ample funds for sanitary work; to the able and earnest Dr. C. W. Chancellor, the distinguished Secretary of the State Board of Health of Maryland; to the genial Dr. H. B. Horlbeek, who journeyed from the Palmetto State to aid his sanitary brethren of the Keystone Commonwealth; to the jovial and genial Dr. W. F. Hyer, who so instructively told us how the State Board of Health of Mississippi secured its munificent appropriation of $45,000 a year, and who truly added that in proportion to the size and wealth of the respective states our Board should have $1,000,000 a year; to Dr. Carl H. Horsch, who so well portrayed the necessity of physical education; to the Lomb Prize Essayist from the West, Dr. Victor C. Vaughan, of Michigan; to Colonel George E. Waring, of Newport; to Dr. Hugh Hamilton, of Harrisburg; to the Rev. Matson Meier Smith, who so appropriately and so fervently invoked the divine blessing on our labors; to Dr. W. S. Ross, of Kentucky; to Dr. Alfred Ludlow Carroll, of New York, whose arguments are so convincing; to the practical sanitarian, Mr. Henry Lomb, who journeyed all the way from Rochester to attend this Convention, but who disappointed us by modestly retiring and preventing us from honoring him in person at the banquet; To the distinguished sanitarian Dr. Henry B. Baker of Michigan; to Dr. Lindsley of Connecticut; to Dr. Charles Mitchell, of Tennessee; to Drs. Jackson Piper, James A. Stewart and John Morris of Maryland; to Dr. D. W. Jefferis of Chester; to Dr. J. Lowry Sibbett of Carlisle; to the delegation from Allegheny county,—in a word to all who aided us in the Convention; to all whose names appear on the programme; to our fellow citizens as well as to those who came from abroad; to the Press and our audiences, and above all to those philanthropic men and women who *practically* aided us with their money, the Committee desires to return its heartiest thanks, and to place on record its grateful appreciation of their co-operation. In conclusion, it is the sentiment of the Committee that it will be well to hold another Convention next spring, efforts being made in the meantime by missionary work to arouse the people of the State to the importance of the subject."

In conclusion it may be added that the Board approved of the recommendation to hold another Convention next spring.

TO THE MEMBERS OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.

We sent to each member of this Association a sample copy of our July issue. The response from this source to our appeal for subscribers has not been what we had expected. It is true, the time has been short, and many are, no doubt, away from home enjoying their vacations. We had counted on considerable support from this body of men, banded together for the avowed purpose for which our journal is published. There are some eight hundred members of this Association, and while the sum of two dollars would signify but little to each, yet the aggregate (if each member subscribed and induced only *one* friend to do the same) would enable us to vigorously carry on the work of sanitary education.

This cannot be construed as begging, for we know that the journal (when compared with other periodical literature) is fully worth the price asked for it.

We make these few remarks because we imagine that the members of this Association may be laboring under the impression that this is a State publication, prepared for gratuitous distribution. This is erroneous; it is a private enterprise that has received the sanction and moral support of the State Board of Health, but that is dependent for its vitality upon the subscriptions of those who are interested in its work. We do not mean to say that it will not be published if the members of this Association do not subscribe to it, for it will, and will be regularly sent to those who do subscribe; but what we mean is that a subscription from each member of this Association will do much to enable the journal to extend its usefulness. We would respectfully ask each member of the Association, who reads this editorial, and who decides not to subscribe, to kindly send us a postal card, giving his reason, as we would like to know why avowed sanitarians are not willing to *practically* aid sanitary work, especially when it costs so little. To those who decide that they will subscribe, we would say, please do so at once and do not put it off until you forget it, for please remember that the printer must be paid promptly.

Notes and Comments.

YELLOW FEVER IN SOUTH AMERICA.

The unhealthiness of many localities on the northern shores of South America, and in Central America, deserves to be seriously taken into account by any who contemplate seeking employment in that part of the world. Yellow fever especially seems to hang over these countries, and the reports which have reached us during the last few months show that this disease has prevailed more or less severely in Rio de Janeiro, Bahia, Pernambuco, Guiana, on the railway works at Caracas and La Guayra, and on the Canal works at Panama. The latest information is from the British Minister at Caracas (Venezuela), who reports great mortality among British subjects resident there, and states that many British mechanics are induced to emigrate to Venezuela under false impressions as to the climate, a better knowledge of which would enable those who thus risk their lives to obtain more favorable terms.

COOL AUGUST NIGHTS.

We all know that we will now have cool evenings and nights, but it will do no harm to remind our readers that if they are imprudent enough to sit out of doors with no head-gear and wear seersucker coats or none at all, as they have been accustomed to do during the hot, sultry evenings of July, they will have only themselves to thank, (after this reminder) if they wake up in the morning with the "snuffles."

A POLISH IMMIGRANT AND SMALL-POX.

Fourteen cases of small-pox were discovered in Williamsburgh (New York). recently, all of which were traced to a young Polish immigrant who landed at Castle Garden a short time since—a clear case wherein somebody's negligence is liable to plunge the people of Williamsburgh into incomparable sorrow, to say nothing of great expense. For Heaven's sake, let us have fewer negligent or ignorant officials.

PUS IN THE MILK.

For the benefit of our non-professional readers we will promise that *pus* is what is usually spoken of as "*matter*" and will then quote from Dr. E. H. Bartley's paper (*N. Y. Med. Jour.*, July 17,) that some years ago a number of cases of sickness resembling typhoid fever were traced to a stable in the upper part of New York city. An inspection of the cows showed one of them to be sick. Her milk, on examination, was found to contain pus. The suppression of this milk resulted in the complete cessation of the sickness. An inflamed and suppurating udder may give a milk which will sicken those who partake of it.

SMALL POX vs. VACCINATION.

Most of the Swiss cantons have been wise and kept to compulsory vaccination; but in Zurich they were extra-wise, and repealed the compulsory vaccination law. This was in May, 1883. In that year, as in 1882, the deaths were *nil*; in 1884 the deaths rose to eleven; in 1885 to seventy-three; in 1886, for only three months the deaths are eighty-five. The London *Times* correspondent says the law will be re-enacted. Of course; the door will be locked again, but the steed has been stolen.

POISONOUS HONEY.

Il Morgagni reports that at the last meeting of the Agricultural Society, M. Bley made a communication on the poisoned honey frequently imported from Trebizond. Stramonium grows there spontaneously, and, being taken up by the bees, poisons the honey, which is afterwards exported. Resulting cases of disease—some with fatal issue—have been officially certified. In American honey, also, some poisonous principles have been found, gelseminum especially.

GARBAGE CREMATION IN TORONTO.

The city council of Toronto have erected two garbage furnaces. The pattern selected is that known as the Beehive, which is being largely used in England, with much success. The capacity of each cell is about ten tons per day, at an estimated cost of twenty cents per ton. We learn that the city of Montreal has let its scavenging to a contractor, who is to cremate the rubbish also. This system, known as the "Mano," was introduced into Winnipeg at great cost, and failed from its costliness, as coal is required to keep the furnaces alive. In the beehive the ashes are relied upon to feed the furnaces.

THE CLIMATE OF DUBLIN.

Before the Academy of Medicine in Ireland, Dr. J. W. Moore read a paper on the "Climate of Dublin," based on twenty years' observation. The climate of Dublin was, he said, in its fullest sense, an *insular* one, free from extremes of heat and cold, except on very rare occasions, and characterized by a moderate rainfall (about 28 inches) annually, which is distributed, however, over a large number of days (about 195 in each year). Clouded skies, a high degree of humidity, and a prevalence of brisk winds, chiefly from westerly points of the compass, make up the climatology of the Irish capital.

SANITARY INSPECTORS.

The Mansion House (London) Council on the Dwellings of the People, very wisely ridicules the present state of affairs in the metropolis, in so far as they have only one inspector for every 50,000 to 100,000 of the population. Is it not ridiculous to expect any good results from such evidently inadequate provisions? Is it not time for the people to learn that in order that the greatest measure of freedom from disease may be enjoyed, we must have an ample force of *well-paid* inspectors—men who are sufficiently well paid to enable them to devote their whole time to ferreting out the sources of disease?

GREEN CORN.

Now are we in the days of that delicious legume, and now will we gorge ourselves to satiety. And so we may, if we observe but one little caution. The *meal* of the corn is perfectly digestible; not so, however the shining envelope which surrounds the meal and makes up each individual grain. Use your teeth to bruise each grain well; *chew your corn*, and eat all you choose with impunity. Neglect to use the teeth with which nature has provided you, swallow the grain *whole*, you cannot digest it, it will irritate the stomach and bowels, and you will be apt not infrequently to have the same kind of a time that was enjoyed by the historic parrot and the monkey. If you are *toothless*, use your knife and fork to accomplish this purpose.

STEAM IN SEWERS.

The question as to whether exhaust steam in sewers is injurious to the public health was discussed at a recent meeting of the medical officers of the Buffalo Municipal Board of Health. Dr. Geo. Fell, who has had an extensive experience as a civil and sanitary engineer, was invited to speak to the Board on this subject. In his opinion, the discharge of steam in sewers is not injurious to the public health, provided the sewers are ventilated. If, however, the sewers are not ventilated, the practice is dangerous, since by increasing pressure in the sewers, the sewer air may be forced through traps into dwelling-houses.

PERIODICAL VARIATIONS IN ATMOSPHERIC BACTERIA.

M. Miquel stated at the last session of the Paris Society of Public Medicine that in a series of observations he had made on the periodical variations of atmospheric bacteria he found the maximum number occurred between six and nine o'clock in the morning, and the minimum about two o'clock in the afternoon. A second maximum occurred about seven o'clock in the evening, and a second minimum at two o'clock in the morning. The maximum was greater in the town than in the country. The practical advice to which his experiments point is to ventilate one's rooms, more particularly early in the afternoon and in the middle of the night.

A NEW WAY OF PURIFYING SEWAGE.

The Paris correspondent of the *British Medical Journal* (June 26) says that M. Defosse believes that he has discovered a method of purifying sewage, so that it can be emptied into rivers without danger to the public health. Sewage is at first treated with lime, sulphate of aluminium, and permanganate of potash; then filtered through bricks broken into pieces. After it has been filtered, other reagents are used, which the author does not specify; and the sewage is again filtered, but through a bed of peat. Sewage thus treated is clear and inodorous; whether it is organically pure, remains to be proved by chemical tests.

BABY-COACHES.

Dr. Henry H. Smith of this city has written vehemently against the use of baby-coaches; and now we read that Dr. Maclagan, the medical officer of the Hexham Rural Sanitary District, England, while calling attention to the fact that in his district 124 children out of 1000 die during their first year, attributes much of the mortality to inflammatory diseases of the brain and lungs, caused by exposure in perambulators. Dr. Taylor, of Scarborough, also lays much stress on the matter of wind-pressure to which the perambulator exposes children, in the causation of diseases of the throat and chest. Which all goes to show that when we are exposed to the weather, we should be in a more or less *active* state.

EFFECT OF MENTAL OVERWORK UPON THE TEETH.

Among the hard-worked pupils of the Paris public schools, the teeth become deteriorated in a few weeks after entry. The second dentition is often premature. These observations confirm the statements of Dr. J. L. Williams, of Boston, who has given great attention to this subject. He has shown that any mental strain shows itself upon the teeth in a short time, both in increased decay, as well as in increased sensibility of the dentine. Dr. D. M. Parker has reported that these same changes are always apparent in men who are in training for athletic trials. As there is not the slightest doubt of the accuracy of these observations, they show that these are matters which demand serious consideration from educators.

POUND WISE, PENNY FOOLISH.

The State of Kentucky appropriates only $2500 per annum to the State Board of Health to protect the health and prevent disease among the people of the State, while $6,000 was voted from her treasury to stamp out a single disease in a single locality and among a single herd of cattle. It appears in Kentucky that live stock is at a far higher premium than human stock. A pure-bred bull will frequently command $20,000 in Kentucky, whilst the average citizen is scarcely rated higher than a charge of powder. This want of appreciation of the value of human life is not confined to Kentucky; it is universal. But happily "Dere's a good time coming, it's almost here, it's been a long time on de way."

CUVIER ON TIGHT LACING.

The great naturalist, Cuvier, was walking one day with a young lady, who was a victim of tight lacing, in a public park in Paris. A lovely blossom upon an elegant plant drew from her an expression of admiration. Looking at her pale, thin face, he said: "You were like this flower once; to-morrow it will be as you are now." Next day he led her to the same spot, and the beautiful flower was dying. She asked the cause. "This plant," replied Cuvier, "is an image of yourself. I will show you what is the matter with it." He pointed to a cord tightly bound about the stem, and said: "You are fading away exactly in the same manner under the compression of your corset, and you are losing by degrees all your youthful charms, just because you have not the courage to resist this dangerous fashion."

A TRAMP SHIP.

At the recent meeting of our State Board of Health, Dr. E. W. Germer, of Erie, commenting on the action of our local officials, some months ago, in admitting a cargo of rags that had been refused entry into the port of New York, very forcibly said, "You kick up a thundering rumpus about a poor tramp coming down from Canada, you disinfect him and you run him off to the pest-house; but when a *tramp ship*, the 'Miss Nicolls or what you call her,' comes to your port, full of dirty rags, you tell her to walk in. You know what you ought to do; take an old canal boat and a swivel gun and go out in the river and blow her to *the devil*." This is the same forcible sanitarian whose ideal disinfectant is a ten-gallon can of petroleum and a box of matches.

THE SANITATION OF CALCUTTA.

A most important memorial to the Lieutenant-Governor of Bengal on this subject is now in circulation. It has been signed by all classes of the population and by the entire body of local physicians, and states that since the year 1881 cholera has swept away more than 20,000 people in Calcutta and its suburbs, that in some suburban wards the death-rate has stood at 70 in the 1000, and that during the decade of 1875 to 1884, out of a population of 257,000 in the suburbs, no fewer than half have perished. The memorial points out that this mortality is clearly traceable to defective sanitation. It expresses hearty concurrence with the Government policy of strenuous sanitary reform, and suggests certain legislative and other changes which the emergency renders necessary.

THE HYGIENE OF THEATRES.

Given a spacious theatre, crowded during an evening performance for a period of hours, what is the difference of the effects on its atmosphere produced by the electric light or by gas, particularly as to the temperature and the generation of carbonic acid? Such is the problem which Dr. P. Renk, Professor of Hygiene at Munich, has just set himself to solve. Taking the Theatre Royal of that city, which is lighted by 1,400 lamps on the Edison system, he tested the two kinds of illuminants, with the following results: During a representation which lasted from 5:30 p. m. to 10:15 p. m., and which was witnessed by 1,790 people, he found that while the rise in temperature in the pit was 11.1° Centigrade with gas, it was only 7.7°, also Centigrade, with the electric light; and that in the upper gallery it was 10.7° with the former, and not more than 7.4° with the latter. As to the increase in the production of carbonic acid, the results were equally important. In the pit it was as 2176 with gas to 1221 with the electric light, and in the upper gallery 2855 with the first to 1430 only with the second.

BLINDNESS DUE TO DECAYED TEETH.

Dr. Widmark, a Swedish surgeon, having as a patient a young girl in whom he was unable to detect the slightest pathological changes in the right eye, but who was yet completely blind on that side, observing considerable defects in her teeth, sent her to M. Skogsborg, a dental surgeon, who found that all the upper and lower molars were completely decayed, and that in many of them the roots were inflamed. He extracted the remains of the molars on the right side and in four days' time the sight of the right eye began to return, and on the eleventh day after the extraction of the teeth it had become quite normal. The diseased fangs on the other side were subsequently removed, lest they should cause a return of the ophthalmic affection.

◆

SCARLET FEVER COMMUNICATED BY CLOTHING.

Another case showing the communicability of contagious diseases by clothing is reported from Bath, Maine, where a girl had scarlet fever at boarding school. After recovery she returned home, and a trunk containing the clothing she wore while sick was put away in the garret. Six months later two little children were playing in the garret, and, opening the trunk, took out some of the clothing. In a week both were taken very ill with the disease, and one died. There were no other persons ill with scarlet fever in the community. The danger of contagion being communicated in this manner is particularly great with scarlet fever, the virus being present in the scales that peel off from every part of the body. For this reason, clothing worn during convalescence may be more dangerous than that worn during the height of the disease.

LORD WOLSELEY ON LARGE HEADS AND NARROW CHESTS.

"How often have they seen a young strippling leave a school—at least, he himself had seen it—and join the army, one who ought to have had spectacles, for he could barely see, with a large head and very narrow chest. That was not the sort of young man they wanted in the army." So spoke Lord Wolseley at the Oxford Military College, a public school founded in 1876 in rivalry with Wellington College, for the education of sons of officers in the army. In addressing himself to the students, Lord Wolseley further remarked that "he was quite certain that when they left the college, they should leave it with an enormous number of chances in their favor over those young men who would leave many of the great schools, where the physical training of youth was not so equally or so sufficiently attended to."

◆

CHRONIC TEA POISONING.

Dr. W. N. Bullard, of Boston, has communicated to the *Boston Medical and Surgical Journal* an interesting paper, in which he analyzes the details of seventy-four cases of chronic tea intoxication investigated by him, and formulates the following conclusions:—1. The action of tea is cumulative. 2. Its action is more pronounced on the young and on those subject to anæmia or physically depressed, although persons otherwise healthy occasionally show toxic symptoms. 3. The average amount of the beverage required to produce toxic effects in persons accustomed to its general use is a little less than five cups per day. 4. Chronic tea poisoning is a common affection. Its symptoms most commonly are—loss of appetite, dyspepsia, palpitation, headache, vomiting and nausea, and nervousness combined with various forms of functional nerve affections, such as neuralgia, hysteria, etc. Constipation and pain in the left side or cardiac region are also frequently observed in sufferers from tea poisoning.

PROVISION AGAINST INFECTIOUS DISEASE.

A recent occurrence in Darlington, England, should serve as a warning to all towns that are without a machinery sufficient for dealing with cases of infectious disease. Local authorities frequently neglect to make complete provision until disease has appeared, and even threatened to assume serious proportions. In Darlington there was a hospital for the reception of infectious cases, an ambulance to remove the sick, but there was no horse to be used in connection with it. A man who had been staying at several lodging-houses in the town was attacked with small-pox, and being practically turned out from the last of these places on the ground that he was "not all right," he wandered about until he fell down in the street. There a crowd collected round him, and he remained until a doctor was called, and under his instructions the ambulance was sent for; but owing to the difficulty of obtaining a horse, the man remained for an hour and a half in the street, exposing many people to serious risk.

ISOLATION IN SCARLET FEVER.

It is well known to sanitarians that by far the best means of preventing the spread of Scarlet Fever, when once it has attacked a member of a family consists in strict isolation. By isolation is meant the absolute seclusion of the sick one as well as the nurse, between whom and the outside world absolutely no communication should take place until scaling has been thoroughly completed and the new skin has been entirely formed. It should be most rigidly insisted upon that every single article (clothing, dishes, and everything else) should be carried from the sick room immersed in a solution of corrosive sublimate (say 1 to 1000) and then thoroughly washed in boiling water, while a good precaution would be to keep always going at the door of the sick room an atomizer charged with a similar solution. These precautions we know are troublesome, but when we take into consideration the fact that the question involved is the saving of our children's lives, we surely will not consider any trouble too great.

DAMP BEDS.

The *Lancet*, referring to the death of Mr. Maas, the well-known tenor, calls attention to the peril of sleeping in a damp bed. As a matter of fact, this peril is of the greatest, and it is almost ever-present. The experienced traveler rarely hazards the risk of sleeping between sheets, which are nearly sure to be damp, until they have been aired under his personal supervision at a fire in his bed-room. If this be impracticable, he wraps his rug around him, or pulls out the sheets and sleeps between the blankets—a disagreeable, but often prudent expedient. The direst mischief may result from contact of an imperfectly heated body with sheets which retain moisture. The body heat is not sufficient to raise the temperature of the sheets to a safe point, and the result must be disastrous in the extreme, if, as is sure to happen, the skin be cooled by contact with a surface colder than itself and steadily abstracting heat all the night through. There is no excuse for the neglect of proper precaution to insure dry beds. Servants are never to be trusted in this matter, and the managers of hotels, even of the best description, are singularly careless in respect to it.

EPIDEMICS AND THEIR COUSINSHIP TO VIOLENCE AND PASSION.

At a recent meeting of the Association of Public Sanitary Inspectors of London, Mr. Edwin Chadwick referred to the entire neglect of sanitary legislation which had resulted from the devotion of public attention to the exciting political events of the last few years in Ireland, and pointed out that the most "mud-hovelled" districts in Ireland were the most ravaged by epidemics, and were most marked by crimes of violence and passion. He proposed, as a measure of sanitation, the compulsory subsoil land drainage, and, in some instances, surface drainage, of 150,000 farms in Ireland, which were referred to by the Registrar-General as being too small for the occupiers to live upon them without resources from England, which were now closing against them. In England the voluntary adoption of this measure of sanitation had repaid itself in ten years by a profit of 10 per cent., and Ireland, having a wetter climate than England, was in greater need of this assistance.

◆

AN IRISHMAN ON CREMATION.

At a meeting of the Subsection of State Medicine, of the Academy of Medicine in Ireland, Dr. H. C. Tweedy read a paper on the Sanitary and Judicial Aspects of Cremation. Having alluded to the condition of graveyards which gave rise to the Southwood Smith Commission in 1849, he proceeded to show that the dangers arising from the present mode of sepulture were to be traced partly to the contamination of air and water by the gases of decomposition and other putrefactive matters, and partly to the fact that the germs of several forms of zymotic disease not only retain their vitality in graves, but are capable of indefinite propagation under favoring conditions of heat and moisture, and, becoming liberated on the disturbance of graves, give rise to the several diseases of which each is the specific ferment. The process of cremation got rid of all these dangers, anticipating putrescence by the rapid reduction of the body to its elements, and by the total destruction of all organic germs by the high temperature necessary for the process.

◆

MODERN ADULTERATIONS IN FOOD.

From a paper on this subject in the *N. Y. Med. Jour.* (July 17th) by Dr. E. H. Bartley, a reliable authority, we note the following as some of the frauds that are practiced upon the people. Red lead, chromate of lead, arsenite of copper, Martin's yellow, vermilion, arsenical fuchsin and "fusel-oil" have been detected in confectionery. Vermicelli and pastry have been colored with chromate of lead. Pickles, peas, etc., are colored with copper. Head-cheese and Bologna sausage are made from stale, unsalable meat, treated with borax and saltpetre, and then colored with Venetian red or fuchsin (aniline red). Inferior grades of coffee are polished and colored to make them resemble the more desirable brands. The colors used for this purpose are nearly all the ordinary cheap pigments, such as ochre, umber, Venetian red, animal black, Prussian blue, indigo, French chalk (soap-stone), chrome yellow, one sample of which was loaded with arsenic, arsenite of copper, etc. These and similar poisonous adulterations need no discussion or comment to fix their place in relation to the question of health.

◆

TO DISINFECT A ROOM.

The careful physician will always tell his patients to disinfect the room after a case of contagious sickness, but he does not always tell them how to go about it. That our journal may be a reference book of practical information, we will, from time to time, furnish the details of different plans of disinfection, any one of which may be resorted to. The following we take from the *Centralb. f. Chirurgie:*

"The windows of the infected room having been closed tightly, 1½ to 2 oz. of corrosive sublimate are placed on a small shovel of burning coals; after that the person leaves the room immediately and closes the door. The sublimate evaporates rapidly, and the room should be exposed to its vapors for three or four hours. Then the door is to be opened, and, covering the nose and mouth with a piece of cloth, the person re-enters, opens the windows, and closes the door again. The room having beem thus ventilated for several hours, the possibly remaining vapors are to be rendered harmless by the burning of sulphur in the closed room. After repeated ventilation the room may again be occupied."

DISEASED EGGS.

Dr. D. F. Wright, in the *Bulletin of the Tennessee State Board of Health*, says that soon after it became the practice to transport eggs in large quantities and to long distances by railway trains, it was found on their arrival that adhesion had taken place between the membranes of the yolk and those of the shell, so that the yolk could not be turned out of the shell unbroken. On examination by experienced pathologists this was found to be the result of true inflammation; the material of the adhesion was found to be precisely the same as that of the plastic exudation in inflammation of the lungs or bowels. It will at first seem absurd to speak of inflammation in such an unformed mass as an egg; but this arises from our forgetting that, structureless and unorganized as it seems, the egg, even when fresh laid, is a living being, and capable of disease from external causes. The cause of this inflammation is undoubtedly the shaking and friction from the motion of the cars, and it cannot but render the egg more or less unhealthy, as the products of inflammation can never be as salutary in food as those of healthy growth.

UNDERGROUND DWELLINGS IN EDINBURGH.

At a recent meeting of the Public Health Committee, Edinburgh, there was reported by the burgh engineer and the medical officer of health, in pursuance of the instructions of the Committee, the result of a complete survey of the lower flats of houses in Jamaica Street. These houses were constructed fully seventy years ago, according to the best notions prevalent at the time. The builders, in order to make as much as possible of the expensive sites, had excavated to too great an extent; and in all the houses reported upon, the chief sanitary defects were found to be deficiency in light, deficiency in height between the floor and the ceiling, and also the presence of damp. According to the requirements of the Public Health (Scotland) Act, 1867, these houses were found defective so far as accommodation for a family was concerned. But, in addition, the other defects mentioned were sufficient, in the eyes of the Committee, to justify the Town Council in calling upon the proprietors to show cause why these underground dwellings should not be closed.

ICE CREAM POISONING.

Some of the ice cream, after the ingestion of which a large number of persons were recently taken seriously ill out west, was sent for analysis to Professor Vaughn, of Michigan University. He reports, it is said, an important discovery made during his tests. He says that he had a short time previously isolated an active element in poisonous cheese. This substance he has named tyrotoxicon. He says, also, that traces of this body were present in the suspected ice cream, and that to it, in his opinion, were the irritant symptoms due. On this assumption it is claimed that tyrotoxicon is due to the decomposition of milk, and may be developed in any milk kept in unclean vessels, or in an unwholesome atmosphere. The germ giving rise to this new product seems to propagate very rapidly, and as is the case with all other similar organisms, a small amount will speedily infect a large body of milk.

A very important fact, and one of great medical interest, is implied in the foregoing. It may account for much of the intestinal disturbance in children during the warm weather, notably cholera infantum and kindred conditions. Professor Vaughn's report to the State Board of Health will be awaited with interest.

HEADACHE IN SCHOOL CHILDREN.

How little attention does the parent usually pay to the complaint of "headache," from the little boy or girl, who has been *barbarously* kept at study for six or seven hours a day for ten months out of the twelve. Yet Professor N. J. Bystroff has examined 7,478 boys and girls, in the St. Petersburg schools, during the last five years, and found headache in 868; that is, in 11.6 per cent. He states that the percentage of headache increases in a direct progression with the age of the children, as well as with the number of hours occupied by them in mental labor; thus, while headache occured in only five per cent. of the children aged eight, it attacked from twenty-eight to forty per cent. of the pupils aged fourteen to eighteen. The author argues that an essential cause of obstinate headache in school children is the excessive mental strain enforced by the present educational programme, which leaves out of consideration the peculiarities of the child's nature and the elementary principles of scientific hygiene. The overstrain brings about an increased irritability of the brain, and consecutive disturbances in the cerebral circulation.

DISINFECTION OF RAILWAY CATTLE-TRUCKS.

Dr. Redard, Surgeon-in-Chief to the French Railways has lately presented a detailed report on the disinfection of cattle-trucks to the Government-department charged with the railway administration throughout France. After reviewing the cleansing methods adopted in different countries, and recording experiments with chemical antiseptics and disinfectants, Dr. Redard arrives at the following conclusions: Chemical disinfectants are bad microbicides, requiring large quantities and prolonged contact. Spores and germ-corpuscles resist almost all chemical disinfectants. Some substances, which are very active against spores and bacteria, are very frequently powerless against a virus, unless incorporated with it freely and long. Heat is the disinfectant *par excellence.* Numerous experiments with virus and successive inoculations proved that absolute disinfection can only be obtained with certainty with steam superheated to + 110° C. This is not easy to obtain. The different processes hitherto in use only yield boiling water or steam below 100° C. Dr. Redard therefore proposes to pass the steam through a serpentine coil placed in the locomotive boiler. Steam from 110° to 130° C. may thus be obtained.

PREVENTION OF TYPHOID FEVER.

We have received from the Michigan State Board of Health a circular of six pages, entitled as above, giving practical information in regard to the methods of preventing typhoid fever. The Board advises that immediately on the appearance of this disease, a careful examination should be made of the surroundings of the house, and particularly of the source of water used, to determine, if possible, whether it has been contaminated by leachings from privies or other sources of filth. If the sick person has been at home, and not away where the disease might be contracted, it will be safest that the water used by the sick person immediately before having been taken sick should not be used again for drinking or culinary purposes, unless it is boiled. It is believed that thorough boiling will destroy the germs or poison of the disease. Ordinary filtering will not do.

In another paragraph it is stated that as typhoid fever is seldom, if ever, transmitted directly from one person to another, strict isolation is not necessary or important in preventing its spread. It would be wise, however, for all who can properly do so, to keep away from the premises.

For disinfecting the *contents* of privy vaults it is recommended to use four ounces of the best chloride of lime to each gallon of material in the vault.

PUBLIC HEALTH IN TASMANIA.

Public health legislation is extending in the colonies of Great Britain. Under the Public Health Act of 1885, passed by the Parliament of Tasmania, each local Board is required to appoint a medical officer of health; by-laws may be made as to many subjects, including control over meat, milk, dairies, etc.; analysts may, and in some cases shall, be appointed, and clauses deal with the prevention of adulteration; the protection of infant life is specially dealt with by means of control over houses of persons receiving infants for nursing and otherwise; infectious disease must at once be reported by the local Board to the central Board, which has power to make regulations in such matters, and hospitals, ambulances, etc., may be provided under the statute; special powers are also vested in the Governor in Council to isolate houses, and even streets, in which infection prevails; and penalties are provided for the exposure of infected persons or things. As regards many nuisances, whether connected with trades, animals, or otherwise, the Tasmanian Act follows much in the lines of the English Public Health Act, but it has the advantage of simplicity in dealing with pigs, for it is expressly provided that no person shall keep any swine or pigsty within 100 feet of any house in any city or town, or within 50 feet of any house in a rural municipality.

STALE EGGS.

At a recent meeting of the Council of Hygiene, in the department of the Seine, France, a question was raised as to the fitness for food of eggs which had been laid for a considerable length of time, and which offered certain peculiarities, such as external and internal spots, and the yolks having a strange color, and adhering to the shell. Various considerations on the subject had been submitted to M. Chatin, with the request that he would inform the Council whether, in the case of eggs so affected, it would be necessary to prohibit their sale. The reporter stated that eggs which had spots about them were not necessarily damaged, and they might be used by bakers and confectioners for glazing bread, and some kinds of pastry, whilst the whites could be used by leather-dressers, who employ albumen in the preparation of articles made of leather. He added that eggs which were really damaged, could easily be distinguished on account of the smell. Under these considerations, M. Chatin thought there was no necessity to forbid the sale of them. That a stale egg may, in some cases, be safely eaten, like high game, is quite comprehensible; but game, as well as eggs, cannot be eaten when putrid beyond a certain extent, probably because germs of extreme septic virulence, resisting the gastric juice, have been developed. In the earlier stages of decomposition, both these articles of diet appear to remain innocuous, the game being toothsome to the many, the eggs to the few.

PUSTULA MALIGNA FROM DISEASED VEAL.

In the latter part of last September there was in the commune *Masse di Siena*, Italy, an outbreak of malignant pustule which caused the death of four persons and infected twenty-six others. Dr. Tincolini, who attended most of the sufferers, quietly set about investigating the causes of the outbreak, and discovered that a certain veterinarian, named Castellani, of the neighboring commune of Sovicille, had a calf which died somewhat suddenly. Claiming urgency, he made an autopsy without waiting for permission from the prefect, and declared that the cause of death was rupture of the aorta. He made out a certificate to this effect, and obtained from the authorities permission to sell the carcass for consumption as human food. Three peasant women who aided in the 'autopsy,' and a butcher's boy who peddled the meat, were the first victims, and all died. Six persons who waited upon these four were next infected, but the danger being anticipated, under skillful treatment they recovered. The balance of the cases (20 in number) were not traced directly to the meat of this calf, but in all human probability it was the direct or indirect cause of infection in every case. In 1876 or '77 there was an outbreak of pustula maligna in Osceola, Arkansas, which was traced by the writer to handling the hides of deer and domestic cattle that had died of "black tongue."

SANITARY STATISTICS OF ITALY.

From a recently published report on the sanitary condition of Italy, it appears that the kingdom is divided into 8,259 parishes. In only 318 of these has a chemical analysis of the water been made; the water was found good in 198, moderately good in 85, and bad in 35. Of the dwellings, 37,203 are underground, and are inhabited by 101,458 persons; regarding these dwellings, 2,836 parishes complain that they are narrow and unwholesome. In the Abruzzi, the Basilicata, and the Roman Campagna, many families inhabit wretched caves hollowed out of the rocks. In 1,876 parishes, privies are entirely wanting, and refuse of all kinds is thrown into open pits near the houses. It is reported that in 1,483 parishes there are no chimneys, the smoke from the fires escaping through the door, the window, or an opening in the roof. In 1,699 parishes, cereal products do not form a common article of diet, and are only used on festive occasions, and by the sick. In 4,985 parishes, the flesh of animals is scarcely ever used as food; in 3,637, there are no slaughter-houses. In 1,437 parishes there are no legally qualified medical practitioners, and the sick are treated by unqualified persons. Malarial fevers prevail over an area of 90,000 kilomètres, with a population of 6,000,000. In 1879, there were in Italy 97,855 cases of pellagra; in 1881, 104,067. *Cholera invaded Italy seventeen times between* 1835 *and* 1881. (Is it any wonder? Should we not rather marvel that cholera was *ever absent?*)

LOCAL SANITARY ORGANIZATIONS.

As the question of the best method of local sanitary organization is now occupying the attention of our State Board of Health, it might prove well to note the suggestions for such organization that were made before the last meeting of the Michigan State Medical Society by Dr. O. W. Wight, the Health officer of Detroit. He would have the Board of Supervisors of each county appoint a Board of Health, to consist of two doctors and one lawyer. This latter board should appoint a health officer who, in turn, should appoint his clerk and inspector. He would have the State enact a statute imposing a tax of ten cents upon each inhabitant of the county, to meet the expenses of this organization. For the average family of five, this would amount to only fifty cents per annum—no more than the cost of one office prescription. Given a county of 30,000 people, this would realize a revenue of $3,000. Of this sum he would pay $1,500 annually to the health officer, who should be expected to devote his whole time to the work, while the balance would go to pay the clerk and inspector. The health officer should be vested with the usual powers to abate nuisances; he should twice a year make visits to the public schools, inspect their condition, and offer gratuitous vaccination; he should make weekly reports to the State Board of Health, and should make a special report upon the appearance of any epidemic disease. This plan, so far as it provides for a well-paid health officer, is admirable; the only point about which we are not clear is as to whether it is best to have this appointment made by a local board, with local interests, or whether it would not be better for the State Board to appoint county or township health officers, who would be answerable directly and only to the central authority.

EDUCATIONAL OVER-PRESSURE OF YOUNG CHILDREN.

Dr. Clippingdale, of England, says that the cases, 23 in number, had occurred among 95 children of school age, and came under his care at the Kensington Dispensary. The symptoms attributed to over-pressure were sleeplessness, giddiness, vomiting, noises in the ear, nervousness, and loss of appetite, with consequent wasting. The youngest patient was three, and the oldest nineteen years of age. As to the pathology of the affection, although no post-mortem examination had been made, the symptoms clearly indicated a nervous congestion started by brain stimulation, and assisted by the bent posture of the child at school. The remedy of over-pressure was the removal of the causes. The causes were mainly two, viz: over-teaching and under-feeding. All pressure should be removed both from teaching and taught, and a child should be provided with a frugal breakfast. The State had imposed an artificial though beneficial condition upon children, and it was its duty to see that the children were properly prepared for it, either at home or at school. At present, however, it was too often the case that a child having talked in his sleep about his desk and his slate, rose unrefreshed, satisfied the craving of his intellectual nerve centre by the alkaloids to be obtained from tea, rather than by the proteids to be obtained from bread and bacon, and with his brain so stimulated, but not nourished, he went to school to use it. Was it a wonder, then, that the brain was unequal to the task imposed on it?

COWS AND SCARLATINA.

It is probably known to many of our readers that attention has been recently called in England to the fact that there sums to be a close connection between a contagious eruptive disease among cows and the occurrence of scarlet fever among those who consume the milk of cows so affected. (See page 221.) To substantiate these observations, Dr. J. Muir Howie thus writes to the *Brit. Med. Jour.*, June 26th:

"One morning I was sent for to visit the child of a milk-dealer that had been taken ill the previous night. My visit was delayed till 2 o'clock P. M., by which time the child was covered with an almost livid scarlatina rash. It was quite delirious, and died in about three hours. The only other child in the house took the disease in a malignant form, but ultimately recovered.

"Some time afterwards, I saw another similar case, which ended fatally. I was struck with the similarity, and, on inquiry, was not surprised to discover that the subject of the disease (a fine healthy boy, about seven years of age) was in the habit of spending the greater part of his day in the yard of a neighbouring milk-dealer, where cows were constantly kept. Since that time, I have seen very many cases of scarlatina, but none so virulent.

"Is it possible that the virulence may be accounted for by these patients contracting the disease direct from the cow?

"It would be an unwelcome illustration of the law of compensation, if it should be shown that, while the virus of small-pox is attenuated by passing through the cow, that of scarlatina is rendered more deadly.

"I have alsoremarked, in those country districts in the North of England with which I am acquainted, how very fatal are epidemics of this disease among the children of even well-to-do farmers."

COMPULSORY SWIMMING IN SCHOOLS.

A feeling has for some time been steadily growing that all healthy persons should be able to swim, and our schools which are favorably situated should include this most useful art in their curriculum of education. Compulsory instruction in swimming has found favor with some continental communities, and indeed there is much to be said for such a course. All children, as is well known, do not take readily to bathing, while of those who do some never take the trouble to learn to swim. Thus it comes about that persons who have spent their lives at the coast—many fishermen, for example—are helpless when immersed in deep water. There is reason therefore in the argument that swimming should form a regular part of school training, and should be compulsory on boys and girls alike, who are not disqualified by bodily infirmity. Even children of poor physique, if not vitally damaged by disease, will often benefit by such a course. Not only is the vigor of every organ and tissue stimulated by the bracing chill of cold bathing, but the skin surface which is cleansed from the products of its excretion must also subserve, much more effectually than one which is not, the nutrition, purity, and working power of the more active organs. Health, without doubt, is largely indebted to a clean skin. In swimming we have these various physiological advantages with that of muscular effort added, and when we think again of its great utility in case of such accidents as every summer invariably brings us, we cannot but plead that the kind of compulsion exercised abroad may also be applied at home. Many of our large towns have the sea, lake or river close at hand, while inland populations which have not this advantage are seldom without one or more swimming-baths.

THE DANGERS OF DUST.

The *Lancet* very truly says that darkness, damp, and dust are potent agencies of disease. Every one recognizes this; but how many fail to adopt its precepts! If there be sermons in stones, surely the summer dust and its dangers would prove a fruitful subject for medical discourse. There is as great a difference between city and country dust as there is between the corresponding muds. Pulverized matter would be harmless enough if it were deprived of its physical property of ready diffusion. The atmosphere is laden and swarms with particulate matter of highly complex nature. Its chief peril to living beings resides in the organic constituents; largely this organic material consists of minute forms of life in a state of latency, only waiting for a spell of heat and moisture, and a favorable amount of light, or it may be darkness, to awaken it into activity. The habits of individuals in every class of society, including the "masses," are not calculated to diminish but rather to augment the amount of organic matter in our atmosphere. Mucus, saliva, and humor, popularly known as "matter," must be discharged from the mouth and nostrils to the extent of many gallons daily, and not a little of this comes from infective sources; whilst we venture to think that the bulk of it mingles with the dust of our streets and courts. If, as seems not unlikely, consumption is largely caused by "germs," then a very ready theory may be advocated concerning the mode in which the contagium is caught. Who can estimate the amount of mischief that the shaking of mats may have caused? How many young girls early in the morning on their way to business have, so to speak, received their death-blow whilst inspiring, all unconscious of harm, some of the clouds of dust that every morning greet them? Who can tell? The abatement of this danger and nuisance is a difficulty that almost seems insurmountable. Much may be done by personal habits of prevention.

ILLUSTRATIONS OF THE ORIGIN OF CERTAIN ZYMOTIC DISEASES IN AN ISOLATED HOUSE.

Dr. Eaton of England makes some introductory remarks on the connection between unsanitary arrangements in houses and the spread of zymotic diseases, and relates the following circumstances: During February, 1884, a most virulent case of diarrhœa occurred in a child, aged 5 months, which proved fatal within a few days. Within another two days, the father was below par in health. In another three days, a son, aged 6 years, was ill of double pneumonia, of an adynamic type, from which he slowly recovered; and in a few days more a daughter, aged 11, had a severe attack of diphtheria. The following month, the mother was suffering from a low state of health. Eleven months afterwards, another daughter, aged 10, had a severe attack of diphtheria; and, nine months ago, a female visitor, aged 13, who had been staying a fortnight in the house, was taken home ill, of what proved to be a very severe attack of diphtheria and scarlatina combined. On inquiry, it was found that an extremely foul cistern, situated close to the children's bedroom, had been cleaned out just before the first series of cases occurred. The overflow water from this cistern passed directly into the soil-pipe, which was not ventilated. The water-closet pan was not sealed; sewer-gas was, therefore, constantly escaping into the water-closet, and prevading the adjoining parts of house. The direct connection of the overflow pipe of the cistern with the soil-pipe permitted sewer-gas to pass to the cistern, which, of course, soon became excessively foul, and, the cistern being open at the top, the loft above the children's bedroom became saturated with sewer gas. At an opening in the ceiling of this room, a down draught was detected, constantly entering the room three feet from its eastern corner, where an open grate was situated. The defaulting room had, previously to 1884, been used as a servant's bedroom, and the servants had frequently been ill (of disease the nature of which he could not learn), without the cause being known. It had been used as a bed-room and day-nursery by all the children who had become ill; and the occurrence of the second series of cases simply proved that the cleansing and disinfection has not been thoroughly performed after the first cases had occurred, and that some source of infection must have been overlooked.

SANITARY CONDITION OF THE ISTHMUS OF PANAMA.

Some time ago Dr. A. Nicolas was sent by the Paris Public Works and Construction Company to examine the hygienic conditions along the route of the Panama Canal, with a view to the organization of an efficient medical service to combat the evils of which so much has been heard. His report, which confirms in many respects the unfavorable accounts previously published, was read before the Paris Acâdemy of Medicine at a recent meeting, and so much value was attached to it that the Academy decided to print it *in extenso*. The entire region through which the canal is to be cut is particularly insalubrious, the unhealthiness being at its maximum in the two towns of Colon and Panama, situated respectively at the opposite extremities. Panama, surrounded by marshy plains, from which every breeze bears deleterious effluvia, is the more unhealthy of the two, and Dr. Nicolas considers that it would be useless to attempt to purify it—the town must be entirely rebuilt on another site if any good is to be done. Colon, on the other hand, is in process of rebuilding, after its recent destruction by insurgents; but it will be extremely difficult to improve its sanitary character unless a lagoon which penetrates to the heart of the town is destroyed. The temperature on the isthmus is not extraordinarily high, but the hygrometric condition of the air is peculiar, being always near the saturation point from 7 a. m. until 7 p. m., and the whole region is covered with mist, which prevents radiation, and probably modifies the electric condition of both air and soil. The heat on the isthmus has peculiarities not met with either in Mexico, on the Congo, on the Gaboon, or in Guiana; but it is not without analogy to that of the Tonquin delta. The enervation which it produces is characterized by loss of memory, persistent sleeplessness, and peculiarly passive and profuse perspiration. Dr. Nicolas concludes his report with various recommendations with a view to diminishing the mortality, amongst which drainage and attention to the water-supply naturally occupy a prominent place. It is evident that sanitary conditions are not by any means the least of the difficulties which M. de Lesseps and his colleagues have to contend against in carrying out the gigantic work they have undertaken.

SANITATION IN WORKSHOPS AND FACTORIES.

The *Boston Medical and Surgical Journal* very truly says that the increased attention which is being demanded by and paid to the rights of labor at the present time should reasonably be extended to a field of which little is known by the laborers themselves, but wherein important interests are at stake for them, as in some of the more obvious, and perhaps more tangible ameliorations of their lot for which they are contending. We refer to protection of those employed in workshops and factories against the neglect or violation of sanitary precautions on the part of the employers. Mr. Gerhard, C. E., of New York, has recently published an article in *Mechanics*, in which some of those remediable dangers are referred to. He speaks of the ordinary injurious trades, involving work in poisonous chemical compounds, in extremes of heat and cold, in exposure to dangerous machinery, etc. Here, of course, the danger cannot be wholly removed, and men should so understand it. By the appointment of skilled inspectors, however, it can be seen that all available precautions are taken by the employers. Dangerous parts of machinery can be guarded by railings and wire nettings. Workrooms may be inspected with reference to the ventilation, warming, etc. The number and condition of water-closets and urinals is a matter that will admit of more careful overlooking in many of the large factories, though the foul condition sometimes existing is doubtless due to the carelessness of the workmen themselves. Still, the innocent should not be made to suffer for the hygienic sins of the guilty.

The securing of good drinking water, facilities for escape in case of fire, precautions against explosions, safeguards in the use of elevators, the protection of surrounding air or water from pollution by noxious chemical vapors or poisons—these and many other subjects would be legitimate work for a hygienic inspector, who might be appointed by the State in the interest of the employed, but whom it might also be worth the while of the manufacturer himself to pay, as a measure of self-interest as well as of humanity.

ON SUCTION OF SEWER GASES INTO SERVICE-PIPES CONVEYING DRINKING-WATER —A FERTILE CAUSATION OF ENTERIC FEVER.

Before the Society of Medical Officers of Health of London, Dr. Horace Swete read a paper for the purpose of showing an insidious danger that existed where a vacuum was formed by water-pipes being suddenly turned off from the main, and the means he had devised to prevent such an occurrence. He first pointed out the danger attending the intermittent water-supply, and very often also the constant service-supply, as various occasions arise for shutting off portions of the water-supply for making repairs, flushing, etc.; it is when this happens that a vacuum is formed, and sewer gases are admitted into the water-pipes. This was illustrated, first, in Dr. Blaxall's report to the Local Government Board, of enteric fever occurring at Sherborne; secondly, in that notable case of typhoid fever at Caius College, Cambridge, where Dr. Buchanan in a most masterly way discovered the source of sewer gas in the one water-closet which was attached to the room of one of the Fellows, in which, during his absence, the dry weather caused the small siphon of the weeping-pipe to dry up, and gases freely came from the town sewers, and were sucked into the pipes supplying the students with water. Dr. Swete then referred to his own personal knowledge, how he found coal-gas at Droitwich in the drinking-water, sucked in from an adjoining gas main; and again at Kidderminster, the water-supply falling short, the main was turned off daily for several hours, the cause of the outbreak here being not in the well water, but in that which passed through the pipes, which being constantly milky when drawn, showed that air—viz., sewer gas—had found its way by suction into the vacuum formed by the water having been turned off. He then went on to point out the means of preventing this danger, and came to the conclusion that the only true protection would be to admit air into the highest point of house service-pipes whenever the water was turned off, thus effectively to prevent suction either by siphon action or by the formation of a vacuum in the service-pipes. To effect this he constructed a dome-shaped valve, inside of which a float surmounted by an elastic disc presses against a metallic diaphragm; above the diaphragm are holes to admit air, so that when the water falls the float falls with it, and air is admitted; when the water is again turned on, the float rises and seals the valve; the greater the pressure, the more closely the valve is sealed.

DEATH-RATE AND SANITATION IN RUSSIA.

A series of admirable articles on vital statistics, and the importance of sanitary measures, has recently appeared in one of the St. Petersburg daily papers, founded on a paper by Dr. Eck. The statistics given are certainly of a nature to set every one in Russia thinking seriously about taking measures to improve them. Thus for the year 1882, which seems to be the last year whose vital statistics are available, the mortality in the ten southern provinces was 2.6 per cent., in the seven eastern provinces 3.9 per cent., in the thirteen middle provinces 6.2 per cent., in the sixteen western provinces 3.1 per cent., and in the fourteen northern provinces 3.7 per cent. After mentioning the various sanitary improvements called for, as drainage of various kinds, a supply of wholesome drinking-water, attention to and regulations about buildings of all descriptions, and the establishment of infectious hospitals, Dr. Eck goes on to say: "There is no need for us to puzzle ourselves how these matters are to be done; England has accomplished so much that we need simply adapt what is ready to our hands to our own circumstances. In Germany, France, Austria, and Italy, steps are already being taken in the same direction, and all these countries take England as their chief model, so that we need not be ashamed to do so too." He then appeals to the economic importance to Russia of a reduction of the mortality. On the principle of example being better than precept, he goes into a long but easily comprehensible calculation of the comparative working value of horses whose ages at death vary; and he then takes the respective death-rates of Russia (35), Germany (27), and England (19), and, by means of a method of computation unusual amongst British statisticians, explains that they show that an Englishman has 53 years of life, while a German has 37, and a Russian 29 only. Reckoning a man's working years to commence at the age of 18, an Englishman has 35 years in which to earn, against the Russian's 11, and the latter will probably not save much more in his 11 working years above what it costs him to live, than has been already expended upon him during his 18 unproductive years; but an Englishman will have 24 years more in which to go on earning and saving. Again, out of 1000 inhabitants in Russia, only 373, or 37 per cent., are of an age to earn, while in England there are 660, or 66 per cent.; or each individual of working age in Russia has to provide for two non-workers, while in England he has only half a non-worker for whom to be responsible.

THE VALUE OF SANITARY PROGRESS IN LIVERPOOL.

In his annual report on the city of Liverpool, Dr. Stopford Taylor gives some interesting information bearing on the gradual improvements which are there being effected in securing an improvement of the public health. The "insanitary property" purchased in 1885 included 411 houses, and during the same period 631 houses were demolished. This may be taken as a type of the work which is steadily in progress; and Dr. Stopford Taylor points to the results of these and other labors by showing that whereas the average death-rate for the city was in the ten years 1841–50 as high as 36 per 1000, it has almost uniformly diminished during each subsequent period, until it now stands at 23.7 per 1000. He then goes on to point out that the application of the sanitary sciences to the improvement of public health is necessarily a work of an aggressive character, and hence, though its development is certain, yet the securing of its full advantages is a slow process. The aggressive action is also fully justified by the results obtained. Thus, if during 1885 the same death-rate had prevailed as was in existence during the decennium 1851–60, the lives of no less than 3917 persons who were living at the end of last year would have been sacrificed. And, assuming that there are ten cases of sickness for each death, there was a saving of 39,170 cases of disease, with all the attendant cost of nursing, medical attendance, etc., And not only so, but every life has its value so far as the State is concerned. Taking a series of observations on the wages of the agricultural laborer, and making the necessary deductions for the mean value of his subsistence during the various periods of his life, the mean net value of life in that class at all ages and in both sexes is not less than £110 per individual; whereas amongst the population of all grades the value would amount to a net profit of £159 per head. Now, applying this estimate, which is that determined by the late Dr. Farr, to the 3917 persons whose lives were saved in Liverpool in 1885, there is a monetary saving of £622,803. And when to this is added the saving in the cost of sickness, funerals, loss of work, and increased pauperism, Dr. Stopford Taylor has the right to assume that there is enough to encourage the labors of the department over which he presides, and to inspire them with a hope of obtaining still greater benefits in the future.

HEALTH AND IRRITABILITY.

A foreign exchange very truly says that oneof the most troublesome features of life, under unhygienic conditions, is the irritable condition into which the denizen of busy cities is apt to drift. The dyspeptic troubles, consequent on the ingestion of unsuitable food taken at unsuitable hours; the substitution of worry for exercise, and of "pick-me-ups" for healthy stimuli—all tend to impair the equilibrium of his physical organization, until incomplete assimilation and imperfect nutrition culminate in a jaded condition of body and mind, which betrays itself by a want of self control, and consequent "pettishness" and ill-humor. The philosopher has said, "he who is himself ill at ease, can scarcely be expected to contribute to the ease of others;" but, unfortunately, the individual so affected exerts something more than a negative influence on the happiness of the persons with whom the details of every-day life bring him into contact. His servants learn to dread his "spleen," and the charm of domestic life is destroyed by his querulous discontent. Such a state, which is rarely the attribute of perfectly healthy bodies and well balanced minds, should be looked upon as an indication of undue friction in the mechanism, calling for the intervention of the physician. A careful inquiry will often elicit the fact that the hyperæsthetic temper is of adventitious, and possibly recent origin, and is attributable to excesses, either gastronomic, intellectual, or sensual. With this information in his possession, the medical attendant will not find it a difficult task to formulate such rules as shall conduce to a return to the normal. That the patient will always consent to purchase serenity of mind at the price of self-control and abnegation, is too much to expect, as patients are at present; but, in case of refusal, he will only have himself to thank, if he ultimately become possessed of serious doubts as to whether life be really worth living. The professional man himself will do well to make undue irritability, on his own part, the pretext for more careful distribution of work and play, or even for a holiday. It constitutes as sure and as reliable a sign of exhaustion, as do the failing appetite and the unrefreshing sleep; and, for his own sake, as well as for that of the people who are the involuntary victims of his infirmity, he should consider by what means he can regain the health which he has jeopardized. Town people are notoriously wanting in that calmness of temper to which rural happiness—such as it is—is largely due; nor can this ever be attained, so long as the exigencies of fashion involve habits as opposed to health as they are to happiness.

SUDDEN DEATHS AFTER SEVERE EXERTION.

An English exchange says: Two deaths have recently occurred which ought to serve as a note of warning to those who undertake severe muscular exertion without due preparation for the same. In one case the fatal results occurred during an Alpine expedition; in the other after a sharp row on the river; in both death was by syncope. It is probable that in each case, had the work been undertaken gradually and with some degree of training, instead of a fatal result ensuing, the bodily health might have been improved. Both of the deceased persons were of an age when degenerative changes in the muscular tissue of the heart or of the vessels would hardly be expected, and the syncope must have resulted from the sudden strain thrown on the cavities of a heart weakened previously by a long period of inactivity, and before the concordant action between the heart and great vessels had been established. This is always a danger when violent exercise is suddenly undertaken, and the mischief is of course greater in elderly persons than in young adults. Many middle-aged men who, at the commencement of their autumn holidays, after months of comparative inactivity, undertake without preparation some feat of Alpine climbing, or a long day's grouse shooting on the moors, lay the foundation of future heart troubles or aneurism simply because they will not allow time for the concordant action between the heart and great bloodvessels to be established. In all cases where men are suddenly called upon to exchange a sedentary life for one of increased activity, they should consult their medical attendant as to the condition of their circulatory system. One instance is particularly recalled to us of a distinguished general practitioner, who had long been troubled with a spasmodic cough, which he thought proceeded from deranged stomach, and which a month among the Alps would soon put right. He started on his journey, but fortunately *en route* he travelled in the same carriage with a physician who was personally a stranger. During the journey the physician was struck with the character of the cough, and after a little conversation an examination of the chest was made, which resulted in the discovery of an aneurism of the transverse aorta, which had escaped the patient's notice. Had he made any of his contemplated ascents he would have aggravated the condition, even if the attempt had not led to sudden rupture of the sac and immediate death.

DISSEMINATION OF SCARLET FEVER BY DRINKING THE MILK OF DISEASED COWS.

Before the London Epidemiological Society, Dr. James Cameron read a paper entitled, "Observations on a Certain Malady Occurring Among Cows at a Time when the Milk Produced by them Disseminated Scarlet Fever," of which the following is an abstract. The author began by stating that he proposed to lay before the Society a short description of a cow disease which had been the subject of investigation by Mr. W. H. Power, Dr. Klein, and himself, during a recent inquiry into an outbreak of scarlet fever which occurred in certain districts in London and in Hendon, amongst consumers of milk derived from a dairy farm situated within his sanitary district. It was not his intention to discuss the circumstantial evidence which led to the discovery of this disease amongst the cows, or which proved its connection with the milk. These were respectively in the hands of Mr. Power and Dr. Klein. The disease is certainly not a new one; it has been known to some farmers and cowkeepers, at any rate, as a catching malady under the designation of sore teats, blistered teats, and the like; but it has never hitherto been recognized or described as a specific or contagious disease amongst cows, or considered to have any concern with the causation of scarlet fever in the human subject, and has commonly been regarded as a malady of little importance.

After giving an account of the farm, and speaking favorably of its sanitary condition, the author stated that the disease first appeared in some newly purchased cows, which had arrived about a fortnight before the first cases of scarlet fever occurred among consumers of the milk. It was subsequently ascertained that one of these cows, which was the first sufferer, introduced the disease into the herd, the malady spreading from shed to shed until the whole herd of 100 cows, with very few exceptions, was attacked; while, coincidently with the spread of the disease among the cows and into the various sheds, scarlet fever made its appearance, and continued to prevail among the consumers of the milk procured from these sheds. Dr. Cameron described the disease generally as a specific contagious disease, occurring usually in the first instance amongst newly calved cows, and capable of being communicated to healthy cows by direct inoculation of the teats with virus conveyed by the hands of the cowman. The disease may continue from four to six weeks, and is characterized by general constitutional disturbance, a short initiatory fever, a dry, hacking cough, sometimes quickened breathing, sore throat in severe cases, discharges from the nostrils and eyes, an eruption on the skin round the eyes and hind quarters, vesicles on the teats and udder, alteration in the quality of the milk secretion, and well-marked visceral lesions.

MEDIÆVAL INNS AND PESTILENCES.

The pestilences of antiquity and of the Middle Ages were simply the explosions of disease engendered by long periods of insanitary living. Want of cleanliness was prominent among the predisposing causes. In Gustav Peyer's "Geschichte des Reisens in der Schweiz" ("History of Travel in Switzerland") a graphic account is given of the mode in which the wayfarer was housed and entertained in the hostelries of the sixteenth century, which may be read as a supplement to the still more graphic description of the same in Sir Walter Scott's "Anne of Geierstein," in the century preceding. In the year 1520, Erasmus wrote to a friend:—"On arriving at your inn, there is no one to receive you, so that there might be no appearance of lying in wait for guests. After you have shouted a long time, a head is thrust out of the little window of the stuffy apartment. You ask for stabling, and the reply is a wave of the hand to the outhouse in question. There you may groom your horse to suit yourself, for no ostler is within reach. Your horse provided for, you make your way, accoutred as you are—boots, baggage, and dirt—to the apartment aforesaid. The room is common to every guest, and there you draw off your boots, replace them by shoes, and even change your linen. On one side of you an 'arrival' is combing his hair; on the other a second is mopping the sweat off his person; while a third is polishing his shoes or riding-boots. You arrive at 4 p. m., but yet you may not dine till 9, or not till 10 p. m.; for the meal is not served till all that the inn can hold have come. As soon as each one has taken his place at table, there enters the sour-visaged Ganymede—grey-bearded, close-clipped as to his head, repulsive of aspect, and foul as to his apparel. Then come with great pomp the dishes Finally the bearded attendant makes his rounds, in his hand the dinner slate, on which he has described with chalk sundry hooks and eyes. Those who can read the heiroglyphics lay down their money on the slate, one after another, till it is covered, and so he marks off those who have paid. No one disputes an unjust reckoning. If, weary from your journey, you wish after supper to go to bed, you are told you must wait till all the other guests are ready to lie down. Then every one is shown his 'rabbit-hutch'—a bed, and nothing more: for, besides the bed, there is no furnishing to it which you can use. The sheets most likely have not been washed for six months." So, freely translated from his idiomatic Latin, wrote the dainty humanist, whose efforts in behalf of the Reformation were *motivés* by other abuses than those of ecclesiastical authority. In explanation of the remark "that there might be no appearance of lying in wait for guests," Herr Peyer quotes a decree of the Zurich Town Council of 1402, to the effect that "fremdenfängerei"—that is, touting for strangers—was forbidden under severe penalties. Certainly, the landlords of the day did their best to make the enactment superfluous.

RECREATION IN WORK.

That the professional man, or the merchant, or the *loafer*, should have some diversity there can be no question. Proverbs are *so*, because, in brief, they contain great truths. "All work and no play makes Jack a dull boy," is a proverb because it is a truth. But *play* does not mean necessarily foot ball, lawn tennis, base ball, and the like; it means an occupation differing from that of the ordinary, serious business life of the individual. It means that he who would be *well* must live his life in more than one groove. We know that a "*Jack* of all trades is *master* of none," but we also know that he who is "master of one trade and a *Jack* of many" is a happy, contented individual, who is well calculated to reach a good old age. These few words will point the following extract which we make from the *Lancet:*

"The truest recreation for mind or body is to be found in change of work. The thesis might be illustrated by the habits of many, nay, most of those who have left an enduring name; but we need not go beyond the events of the last few months in search of an example; we have seen

Mr. Gladstone and Professor Huxley turn aside from their engrossing labors, to engage in a lively discussion of a point in transcendental philosophy. Many members of the medical profession have, especially in past time, earned considerable reputation in other fields of work which have afforded relaxation for spare hours. Dr. Oliver Wendell Holmes has written with his usual clear insight and happy choice of illustrations on this matter, and Dr. Quain did well to advise the medical officers leaving Netley to think upon it. Science already owes many debts to medical officers of the public services serving abroad. Within the strict limits of medicine and pathology, much yet remains to be learned, which they are well able to teach us. Leaving aside the subject of infectious diseases, and the relation in which micro-organisms stand to those diseases, a harvest which now seems ripe for the sickle; leisure hours may be usefully given to the study of meteorology, especially of climate, in relation to disease; to the distribution of disease, and its relation, on the one hand, to meteorological, geological, or geographical conditions; and, on the other, to the social peculiarities of nations and tribes. For the study of folk-lore, which is casting much fresh light on the habits and thoughts of primeval man, members of our profession possess peculiar advantages; they are most fortunately placed to learn customs and superstitions which have gathered round the death-bed, or the cradle of the newly-born child. It is a shallow pate which will merely laugh at these things; they may appear absurd enough in the nineteenth century, but they all have some meaning, had we but the wit to understand it. Even in the England of to-day, traces remain; the lighted taper left with a corpse at night is the distinct survival of a very old and widely-honored superstition; and our wedding customs—the wedding-breakfast and the subsequent honeymoon—point clearly to the ancient marriage by capture. Apart from the general interest attaching to such subjects, the folk-lore regarding plants may afford valuable therapeutic suggestions, resulting in the introduction of such useful remedies as, if we may believe the story, salicin and its allies. Medicine is an engrossing profession; the strictly cognate sciences cover a wide field; and even within such boundaries, recreation in change of work may be found. The medical officers who leave Netley have received at least an elementary training in biology, and they are, therefore, in a position to choose a line of work in one or other department of the biological sciences which will, if systematically pursued, conduct to results of value directly or indirectly to themselves and the profession to which they belong."

THE SANITARY CONVENTION.

Remember that back numbers will become exhausted, and if you want *all* the papers read before our recent Convention, you had better subscribe at once.

EXECUTIVE OFFICE OF THE STATE BOARD OF HEALTH.

The executive office of the Board (Dr. Benjamin Lee, Secretary and Executive Officer), has been removed to No. 1532 Pine street, Philadelphia, Pa.

YELLOW FEVER IN RIO DE JANEIRO.

During the first twenty weeks of the present year, nearly 1,400 deaths from yellow fever occurred in Rio de Janeiro. In 1885, the total mortality for the year from this disease was 234; in 1884, it was about 620; and, in 1883, it was 1,330. Thus it will be seen that the recent epidemic of yellow fever has been much more severe than those of recent years. Typhus and other fevers figure in the death-returns, but not to an exceptional extent. The population of Rio is about 350,000.

◆

ARSENIC IN FABRICS AND WALL-PAPER IN ST. PETERSBURG.

According to the annual report on the activity of the St. Petersburg Pharmaceutical Society for 1884 (*Farmatzevtitchesky Jürnal*, No. 11, 1886, p. 173), the analytical laboratory of the society was commissioned by thirteen private persons to examine twenty-six specimens of various fabrics and paper-hangings. In ten of them—that is, more than in 38 per cent. of the cases—arsenic was found.

◆

THE HEAT AND RAINFALL OF INDIA.

A memorandum has been drawn up by Mr. H. F. Blandford, Meteorological Reporter to the Government of India, which is intended to accompany charts of temperature and rainfall of the country. From this report it appears that the hottest region is really the eastern coast of the Peninsula, from Vizagapatam southwards, and the plains of the Carnatic and Northern Ceylon. In the Peninsula, or intra-tropical India, except as modified by the elevation of the country, the temperature increases steadily from the coast inland; and the west coast is cooler than the east coast. Scinde and Rajputana are the driest portion of India. May is the hottest month of the year in the greater part of the country, the chief exception being in the Punjaub and Scinde, where, owing to the later setting in of the rains. June is the hotter month. The mean annual rainfall of the whole of India proper is about forty-two inches, varying from an extreme of nearly 500 inches at Cherra Poonjee to about three inches at Jacobabad in the extreme west. Those provinces with an average rainfall of more than fifty inches, and an average variability of less than 12 per cent. on either side of that average, enjoy practical immunity from famine.

Queries and Replies.

A SO-CALLED SEWER IN YORK, PA.

A correspondent in York, Pa., asks us "whether or not we should tolerate a so-called sewer which exists in our town, as follows: It is about two squares in length and makes about eight deviations, some right-angled, some obtuse and partly serpentine. It begins at a corner of a block and extends cellar-depth underneath five or six two and three story residences in almost the center of our town. The remainder of the distance it runs through people's premises to the rear of their dwellings, then partly runs on the surface through alleys, and again underground, and empties into the Codorus creek. More than half a century ago it was an old natural water course, and as the locality was built up, this now so-called sewer was partly arched over underneath houses, and a considerable portion of it is simply walled up at the sides like a common country stone wall, with the ordinary stone planked over, and has ordinary soil bottom, and is about six feet wide and of about the same depth"

REPLY.

We reply briefly that any community that tolerates such an antediluvian method of getting rid of its sewage, would be guilty of attending horse-races on Sunday, eating copper-dyed cucumbers and harboring "tramp-ships." Seriously, such an apology for a sewer ought not to be tolerated, and the sooner the citizens of York wake up to the necessity of a proper and efficient system of sewerage, the better will it be for the physical welfare of the citizens of York.

The Annals of Hygiene.

Vol. I. PHILADELPHIA, SEPTEMBER 1, 1886. No. 9.

Communications.

OVERWORK AND SANITATION IN THE PUBLIC SCHOOLS OF PHILADELPHIA, WITH REMARKS ON THE INFLUENCE OF OVERWORK IN THE PRODUCTION OF NERVOUS DISEASES AND INSANITY.*

BY CHARLES K. MILLS, M. D.,

President of the American Neurological Association, etc.

In 1860 I was admitted to the Boys' Central High School from a school in the outskirts of Philadelphia, the first pupil that had ever been sent from this particular school. For four years, except during a few weeks in 1862 and 1863, when with other boys of the school, and some of its teachers, I was doing military duty on the Maryland border, I was a pupil in the High School. Later, I passed two to three years in teaching in Philadelphia schools.

For many years most of my time has been spent at medical work; but a Philadelphia physician is thrown much in contact with teachers, pupils, and the parents of pupils; and it has always been of interest to me to watch the effects of the educational methods in vogue in this city upon the health, both of pupils and teachers.

Taking up the question of overwork and sanitation in Philadelphia public schools, I can only deal in the most general manner with it in the brief time at my disposal. The subject can only be touched upon. It embraces matters which would require for their full consideration many hours and many pages. My object is, simply, to call attention from the standpoint of a physician, who has also been an educator, to a few of the most important health topics connected with our public schools. Such a subject is surrounded with difficulties, although before attempting to discuss it I scarcely realized these difficulties to their full extent. It is worth repeating, trite though the saying be, that education is the greatest problem which we are called to solve. Every intelligent member of the community can, however, if he chooses, do something to advance and spread knowledge with reference to this important question.

I shall first give the results of some personal investigations into the present status of Philadelphia public schools.

During the progress of my inquiries, a gentleman connected with the public school system asked, "Why are we so much disturbed here about overwork? We hear of no such agitation abroad, where we know, as in Germany for instance, great intellectual results are obtained."

---

* A lecture delivered before the Teachers' Institute of Philadelphia, at the Girls' Normal School, December 11, 1885, and remarks made at the State Sanitary Convention held in Philadelphia, May 12, 13, and 14, 1886.

This is a mistake. Much attention has been paid abroad in recent years to this subject. In Denmark, Dr. Hertel, the municipal medical officer of Copenhagen, conducted a year or two ago, a series of investigations in the high schools of Copenhagen, and has published the results of his work in an interesting book,* which has been recently translated. This book contains reference to similar work done in Sweden, Germany, and elsewhere. In London, some two years since, Dr. J. Crichton-Browne, a distinguished authority in mental diseases, and Lord Chancellor's Visitor in Lunacy, investigated a number of the elementary schools in London, and awakened a controversy in educational and government circles, the like of which has not been known for a long time.

Through the courtesy of Dr. Browne I have recived the official documents† bearing upon this investigation, which are of great interest and value.

I made a limited but systematic personal investigation of certain schools, taking for this purpose two contrasting sections (so far as the social and home advantages of the children were concerned), and the Girls' Normal School and the Boys' High School. I also made inquiries, either personally or by letter, of many parents, of members of the Board of Education, of the Superintendent and Assistant Superintendents of the Public Schools, of a large number of teachers, chiefly principals of the grammar, secondary, and primary schools, and of professors and teachers in the High School and Normal School.

On beginning my inquiries, I found at once that the public school system of Philadelphia was in a state of confusion. At one end of the system, the primary and secondary schools were working under a new graded method introduced by the Superintendent, Mr. James MacAlister; at the other, the High and Normal Schools were at work under an old method, graded it might be, but on entirely different principles; and between these two extremes were the grammar schools for girls, in which the pupils, under high pressure, were working for the final test of a severe competitive examination to admit them to the Normal school, and the grammar schools for boys, in which a quota method of promotion to the High School had taken the place of competitive examinations.

A circular having certain queries printed upon it was prepared. I purposely avoided providing a place for the names of scholars, in order that the pupils answering should not be identified. I am sorry to say that they were very generally identified, although not by me.

The following were the questions included in the circular: Class or division? Age? Number and names of studies? Number of hours of school work?—Preparation? Recitation? Number of hours of home work in preparing lessons? Number of hours of sleep? Whether or not the pupil suffered from headache, nervousness, dyspepsia, eye troubles, or any form of ill health, that could be fairly said to be due to school studies?

---

* Overpressure in High Schools in Denmark, by Dr. H. Hertel. Translated from the French by C. Godfrey Sörenson, with introduction by J. Crichton-Browne, M. D., L.L. D., F. R. S. London: Macmillan & Co., 1885.

† Elementary Schools (Dr. Crichton-Browne's Report). Return to Two Addresses of the Honorable the House of Commons, dated 19th June, and 31st July, 1884;—for,

(Address 19th June, 1884.)

"Copy of Report of Dr. Crichton-Browne to the Education Department upon the Alleged Overpressure of Work in Public Elementary Schools." (Lord George Hamilton.)

(Address, 31st July, 1884.)

"Copy of Mr. Fitch's Memorandum relating to Dr. Crichton-Browne's Report in continuation of Parliamentary Paper, No. 293, of the present session." (Mr. Mundella.)

Ordered, by the House of Commons, to be printed, 24th July and 4th August, 1884. London: Printed by Henry Hansard & Son, Printers to the House of Commons.

These circulars, with the permission of the Board of Education and the directors of the schools, were distributed to the pupils, the objects of the questions were carefully stated, and the pupils were told to take the papers home and carefully answer after consultation with their parents.

In this way investigations were made in four grammar schools, two for girls and two for boys, and in the Boys' Central High School and the Girls' Normal School. I will give, in as condensed a manner as possible, the results with reference to home work, and the effects of school studies upon health. I have not adopted the averaging method in presenting these results with reference to home work, but one which I believe is better; that is, I have arranged the results so as to show how many children studied six hours or more, five, four, three, or two hours, or one hour, or more or less than one hour. In an averaging method a few may cause the average to be high or low. Where four, three, two hours, or one hour, are spoken, the report was as to this time or more.

In one girls' grammar school, the total number which reported was 343. The report was as follows: Studying at home six hours, none; five hours or more, 1; four hours, 1; three hours, 33; two hours, 132; one hour, 154; less than one hour, 22.

One hundred and seventy-nine (179) out of the 343 reported that they suffered in some way from ill-health as the result of their school studies, the detailed report as to the form of ill-health being as follows: Headache, 124; nervousness, 57; dyspepsia, 3; eye troubles, 54; miscellaneous ailments, 5. This made a total of 243, more than one complaint being reported by 64.

In another girls' grammar school, the total number reported was 240. The report was as follows: Studying at home six hours, none; four hours or more, 1; three hours, 11; two hours, 48; one hour, 144; less than one hour, 35; not reporting 1.

Out of 240, no less than 139 reported that they suffered from ill-health as the result of their school studies, the detailed report as to the form of ill-health being as follows: Headache, 107; nervousness, 38; dyspepsia, 3; eye troubles, 33; miscellaneous ailments, 2. This made a total of 183, more than one complaint being reported by 44.

In one boys' grammar school, the total number which was reported was 169. The report was as follows: Studying at home six hours, none; four hours or more, 2; three hours or more, 7; two hours, 25; one hour, 44; less than one hour, 79; not reporting, 12.

Seventy (70) out of the 169 reported that they suffered in some way from ill-health as the result of their school studies, the detailed report as to the form of ill-health being as follows: Headache, 45; nervousness, 10; dyspepsia, 3; eye troubles, 24; miscellaneous ailments, 3. This made a total of 85, more than one complaint being reported by 15.

In another boys' grammar school, the total number which was reported was 188. The report was as follows: Studying at home four hours or more, none; three hours, 1; two hours, 18; one hour, 126; less than one hour, 42; not reporting, 1.

Fifty-three (53) out of the 188, reported that in some way they suffered from ill-health as the result of their school studies, the detailed report as to the form of ill-health being as follows: Headache, 29; nervousness, 10; dyspepsia, 3; eye troubles, 20. This made a total of 62, more than one complaint being reported by 9.

In the Girls' Normal School, the total number which reported was 572. The report was as follows: Studying at home six hours or more, 2; five hours, 14; four hours, 36, three hours, 134; two hours, 235; one hour, 120; less than one hour, 31.

Two hundred and sixty-seven (267) out of the 572 reported that in some way they suffered from ill-health as the result of their school studies, the detailed report as to the form of ill-health being as follows: Headache, 177; nervousness, 70; dyspepsia, 12; eye troubles, 82; miscellaneous ailments, 30. This made a total of 371, more than one complaint being reported by 104.

In the Boys' Central High School, the total number which reported was 123. The report was as follows: Studying at home six hours or more, 1; five hours, 6; four hours, 15; three hours, 39; two hours, 40; one hour, 22.

Out of the 123, only 19 reported that they suffered from ill-health as the result of their school studies, the detailed report as to the form of ill-health being as follows: Headache, 9; nervousness, 3; dyspepsia, 4; eye trouble, 5; miscellaneous ailments, 1. This made a total of 22, more than one complaint being reported by 3.

These results, with reference to home work and ill-health, show some overwork in the public schools of Philadelphia, but great improvements have taken place in recent years. Where pupils now report two, three or four hours of home work, I well remember that twenty or more years since five, six, seven, and even eight hours were frequently spent at work out of school. A good friend asserted to me the other day that the school children of Philadelphia were suffering from underwork. This may be the case in special schools, it may be the case in certain sections, but I do not believe that any such general statement could be substantiated. The children are suffering in not a few places from bad methods of work rather than from genuine overwork, because one grade of the school system does not dove-tail with others—the gaps are too great, the changes from one level of the system to another too abrupt. I believe that overwork still exists in the public schools of Philadelphia, less than formerly, and decreasing, but sufficient to call loudly for remedy. I make this assertion with diffidence, knowing that it may be antagonized, and feeling that possibly others may have better means than myself of knowing; but still the opinion is one reached as the result of experience and investigation. The overwork is most marked in the higher grades of grammar schools, more particularly in the girls' grammar schools, and in the Girls' Normal School.

In the primary and secondary grades, there should be no home work. Both the teaching and the studying should all be done in school. In the grammar grades, home work to a certain extent should be allowed; but this should not exceed in the lower grammar grade one hour a day; that is, the compulsory home work should not be more than the average child could get through with in one hour. In the higher grades it should not be more than one hour and a half, or at the most two hours. Recall the figures just given, and it will be seen that in some of the schools three hours or more, and often two hours or more, were spent in home study. When you come to the Girls' Normal School and the Boys' High School, the compulsory home work certainly should not exceed what the average pupil of these schools could do in two hours, or at most in two and a half hours. One professor in the High School, a conservative man of long experience, said to me that he believed that only three studies a day should be required to be done at home, and that these should be of such a character as not to require the average boy to devote more than half an hour to each of them. Far different is the state of affairs shown by the above reports.

Concerning the secondary schools now working under the "new system," as it is called, the system inaugurated by the praiseworthy efforts of Mr. MacAlister, I shall have only a few words to say. The method does not insist on any home work, in fact insists that there shall be none in the secondary grades. For this reason, at first I paid but little attention to the question of home work in the secondary grades. My attention was called to the subject, however, by a parent claiming that his child was overworked in one of the secondary schools. I went into a secondary where at the time by actual count 48 boys were present. I asked how many studied their lesssons at home, and all but three held up their hands. In order to encourage them to tell the truth, I said, "You know, boys, that you should not study at home." The teacher said to me nervously, "Don't say that; you will spoil them." Of course I did not say anything further. They were certainly expected to study at home. In another secondary school I asked the teacher whether any of the pupils studied at home. She said prac tically they all did. "Why is this?" I asked, "are the pupils not expected to get through their work in school?" "I suppose that is the idea," she replied, "but examination is coming round, and it is by that we are measured." I said "Yes, but the examinations are in your own hands." She replied that the five highest and the five lowest papers had to be sent to the Superintendent.

I am not inclined to attack any individual or any particular school, even schools in which there seem to be, from my own standpoint, defects and shortcomings. Why does the ambitious principal of a girls' grammar school stay hour after hour during school, working during recess and after school hours, taking home her papers, and at times, I believe, her pupils as well? It is that she may sustain her reputation in her own section or school. She feels that she is obliged at almost any cost to have a certain average number of pupils admitted from her highest grade to the Normal School. In individual cases teachers may be at fault, but on the whole the difficulty is in the system. It is only by having a system thoroughly graded from bottom to top, from the primary to the Normal and High Schools, that we can hope to get rid of defects and shortcomings. This has been pointed out by Mr. MacAlister in his report to the Board of Education on the revision of the grammar school course of instruction. I believe that it cannot be contradicted, that in the grammar schools of Philadelphia, as at present conducted, the pupils are required to do in from one-and-a-half to two years what the school children of Boston, New York, and some other cities are allowed four years to accomplish. Philadelphians may be heroes, the descendants of heroes, and their children heroes in the making; but brave and strong as we are, we cannot hope that our children shall make the same conquests in two and a half years, that require four years for the children of Boston and New York.

In some schools fewer subjects should be taught. I believe this to be the case, to some extent at least, in the Boys' High School, in the Girls' Normal School, and in some of the grammar grades, as will be shown by a rapid glance at the following list of the studies pursued in some of the higher schools:

The Boys' Central High School: Logic, composition, elocution, English literature, astronomy, uranography, calculus, analytical geometry, trigonometry, geometry, Latin, algebra, mental science, German, political economy, physics, chemistry, natural history, physical geography, anatomy, physiology, mensuration, higher arithmetic, mechanical and engineering drawing, shades and shadows, orthographic projection, linear perspective.

Girls' Normal School: Geology, physiology, botany, mythology, physical geography, music, logic, rhetoric, composition, chemistry, natural philosophy, astronomy, moral science, literature, constitution of the United States, free-hand drawing, sewing, drawing, trigonometry, arithmetic, algebra, geometry, theory and practice of teaching, physical exercises, methods of teaching, orthography, elocution, reading, penmanship, general history, literature and etymology.

Girls' Grammar School, Senior Class: Reading, composition, grammar and parsing, etymology, spelling, arithmetic, mensuration, algebra, physical geography, English history, Constitution of the United States, literature, physiology, drawing, writing and sewing.

Girls' Grammar School, B and A Grades: Reading, composition, grammar and parsing, etymology, spelling, arithmetic, geography, history of the United States, drawing, writing, object lessons and oral instruction, sewing.

In the boys' grammar schools the list of studies is similar in general scope.

Certainly a few of these subjects might either be dispensed with, or the amount of time given to them reduced. Far too much time is devoted to some subjects, like etymology, for instance, which return large averages but do not call out and develop the thinking power of the children.

With reference to the number of hours of school work but little of value was learned. Most of the time in school—in not a few cases all of it—was occupied with recitations. Even when a certain number of hours were supposed to be set apart for preparation in school, this time was usually not strictly used for this purpose.

Judging from the answers to the printed queries, the pupils of the Philadelphia public schools do not suffer much from want of sleep. The returns indicate an average of eight to nine hours' sleep for the large majority of those reporting. I was unable, however, in my limited time to obtain special details as to sleep. The hours reported doubtless in many cases indicated rather the time in bed than the actual amount of sleep. Particulars as to disturbed sleep, dreams, etc., were not obtained.

Dr. Crichton-Browne, in his investigations of the Elementary schools of London, interrogated a large number of children with reference to sleeplessness. He found that the testimony of scores of children that they lay awake till midnight or one or two in the morning remained unshaken on cross-examination. He tells us that arithmetic would appear to be the worst enemy of tired nature's sweet restorer, for one of the commonest explanations of sleeplessness given to him was "Please, sir, I can't get to sleep for thinking of my sums." One boy said that conscience kept him awake, by which it turned out that he meant a consuming feeling of remorse for not having passed his standard. Home lessons, he believed, were responsible for a good deal of sleeplessness. They keep up whatever over-pressure there may be in the school, worry the child who has to prepare them amid distractions and difficulties, and prevent that even subsidence of brain activity which is the best prelude to a good night's rest. Out of 4300 boys and girls examined as to the prevalence of sleeplessness, 1668 cases of sleeplessness were reported, that is a percentage of 38.8. In one school of 381 boys he found 129 of them were sleep-talkers, and 28 were sleep-walkers. In a school of 432 girls he found 17 somnambulists, and in another school of 382 there were 20.

The answers to the question with reference to ill health attributable to school studies gave the following results:

Girls' Grammar School, 124 cases of headache out of 343 reporting.

Girls' Grammar School, 107 cases of headache out of 240 reporting.

Boys' Grammar School, 45 cases of headache out of 169 reporting.

Boys' Grammar School, 29 cases of headache out of 188 reporting.

Girls' Normal School, 177 cases of headache out of 572 reporting.

Boys' High School, 9 cases of headache out of 123 reporting.

Girls' Grammar School, 157 cases of nervousness out of 343 reporting.

Girls' Grammar School, 38 cases of nervousness out of 240 reporting.

Boys' Grammar School, 10 cases of nervousness out of 169 reporting.

Boys' Grammar School, 10 cases of nervousness out of 188 reporting.

Girls' Normal School, 70 cases of nervousness out of 572 reporting.

Boys' High School, 3 cases of nervousness out of 123 reporting.

A very small percentage reported as suffering from dyspepsia.

Girls' Grammar School, 54 cases of eye trouble out of 343 reporting.

Girls' Grammar School, 33 cases of eye trouble out of 240 reporting.

Boys' Grammar School, 24 cases of eye trouble out of 169 reporting.

Boys' Grammar School, 20 cases of eye trouble out of 188 reporting.

Girls' Normal School, 82 cases of eye trouble out of 572 reporting.

Boys' High School, 5 cases of eye trouble out of 123 reporting.

Let me be perfectly fair about this matter of ill-health reported as a result of school studies. The answers to this query are of course open to considerable criticism, but the method adopted is perhaps the best after all, to get at any results in a reasonable time. Crichton-Browne got answers by the holding up of hands, which was not as good a plan. I insisted that in answering this question the pupils should consult with their parents. The percentage of ill-health reported as due to school work should undoubtedly be diminished.

One teacher came to me and said that she thought the question as to ill-health quite unfair; that, for instance, a certain girl who had reported that she suffered from indigestion as the result of school work, had to her knowledge eaten a mince pie the day before. One young lady reported (I think that there was a vein of humor in this young lady), that she suffered from indigestion and several other things, but especially from freckles. A number of misunderstandings, or attempts to make misunderstandings, arose, but I believe that notwithstanding these, and the fact that many of the cases of ill-health ascribed to school work may have been due to other causes, a large percentage of the answers returned can be taken as of value. If we even diminish the returns by one-half, we still have a larger percentage of ailments than we should have under any school system. I did not attempt to get any details as to special forms of nervous disease due to school work. Under "nervousness" such affections as chorea, hysteria, neuralgia, etc., were reported. My object was to get at general facts and opinions. Among the acute nervous disorders likely to occur in childhood and youth as the result of mental overstrain, particularly that which prevails under a pernicious school system, are headache, neuralgias, general nervousness, sleeplessness, hydrocephalus, chorea, hysteria, hystero-epilepsy, insanity of pubescence, and temporary albuminuria. To this subject I have already called special attention in one of the Toner Lectures.*

---

*Mental Overwork and Premature Disease among Public and Professional Men. Ninth Toner Lecture. Delivered March 19, 1884, and published by the Smithsonian Institution, January, 1885.

The number of cases of headache reported is certainly very large. Much of it, I believe, was attributable to the school.

Crichton-Browne* speaks with reference to this question of headache in school children as follows: "In 1879 Dr. Treichler, of Bad Lenk-Bern, read to the German Society of Natural Historians and Physicians assembled at Baden-Baden, a paper in which he maintained, as a result of investigations at Darmstadt, Paris, and Neuenburg, that one-third of the pupils in public schools suffer from habitual headaches, which are becoming year by year more common amongst boys and girls of school age, and which are to be attributed to brain exhaustion caused by school work. Dr. Treichler's statements were received wih general incredulity. In commenting upon them, the *Times* remarked that while we may reasonably hope that Dr. Treichler has overstated his case even as regards France and Germany, we may be quite sure that as regards this country there is no state of things at all parallel to that which he describes. Some inquiries which I myself instituted at that time led me to believe that he had exaggerated the evils which he deplored, but the more extended and minute inquiries which I have now been able to carry out have conducted me to a very different conclusion. Whatever may have been the case in 1879, it is now certain that more than one-third of the children attending Elementary schools in London suffer from habitual headache."

I have no statistics from personal observation with reference to hydrocephalus, but will quote here the remarks of Crichton-Browne† on this subject: "That hydrocephalus is sometimes brought on by excessive study in children of sickly or unsound constitutions is an accepted truth in medicine; and that the increase in the mortality which it occasions during education and post-education ages is in some measure to be attributed to enforced mental application, is, I think, rendered probable by the fact that the rate of increase has been decidedly higher during the last ten years, when education has been so largely extended, than it was in the previous ten years, when education was comparatively neglected. Any medical man will, I am persuaded, find in the statistics of hydrocephalus, to which, as I have said, he would in the first instance turn in any inquiry into the lethal effects of education and over-pressure, enough at any rate to create grave misgivings in his mind, and to convince him that there is need of watchfulness and further inquiry."

It has been my lot to have under observation a large number of cases of chorea occurring in the school children of Philadelphia, in many of which cases mental over-pressure seemed to be distinctly the exacting cause of the attack. Crichton-Browne, however, strange to say, did not find one case of this disorder in any school which he visited. He was told of cases which had arisen in school, but which had been immediately withdrawn. He met many cases of muscular eccentricity closely bordering on chorea. Out of 6580 children he found 48 who exhibited peculiar movements, antics or grimaces, especially when agitated, or called upon to do anything. Dr. Allan McLane Hamilton, as the result of some investigations conducted in New York, found that 20% of young children in the public schools displayed choreic movements of greater or less severity. Crichton-Browne also made inquiries as to stammering, and found a comparatively large number of cases in the lower standards, the effect diminishing decidedly in the higher standards of the elementary school.

---

* Report on Elementary Schools.

† Op. cit.

As I have said in another place,* the injurious effect of American school or college life in the production of hysteria is undoubted, and should be thoroughly appreciated. Our educational processes act both as predisposing and exciting causes of this disorder. Both in our private and public institutions, the conditions are frequently such as to lead to the production of hysteria or to confirm or intensify the hysterical temperament. In our large cities all physicians of considerable practice are called upon frequently to treat hysterical girls or boys.

Clarke has considered some of these questions, and particularly with reference to the physiological processes of menstruation, and its bearing on the inability of girls to maintain equally with boys the stress of such competition.

A form of insanity which has within recent years been studied with care by alienists, is known as Hebephrenia, or the insanity of pubescence, an affection "characterized by mental enfeeblement, marked by a silly disposition, following a preliminary period of depression, which has the same tinge as, without the depth of, that characterizing melancholia, and which coincides with or follows the period of puberty."† It is found in subjects between the fifteenth and twenty-second year usually; and as a rule, the termination is unfavorable. Many of the patients pass into a condition of secondary degeneration, from which they never recover. Undoubtedly, our forcing methods of education have something to do with the production of this form of insanity in special cases. Where, particularly, any hereditary pre-disposition to mental disease exists, the probability of mental overpressure resulting in the development of insanity at puberty or adolescence, should always be borne in mind. "Puberty," says Clouston,* "is the first really dangerous period in the life of both sexes as regards insanity, but it is not nearly so dangerous as the period of adolescence, a few years afterwards, when the body as well as the organs of reproduction are more fully developed."

The question inevitably comes up of examinations, and the methods of promotion from one grade of school to another. The figures which I have given do not touch upon this important point, although I made many inquiries as to examination and promotion. The two, three, or four hours of work daily during the school term is not the whole of the matter. At certain periods in some of the grammar and Normal schools, the pupils have what are termed reviews for examination. During these review times the amount of home work is, on the average, doubled, so far as I could learn from the parents and the children. Sometimes a day of non-attendance at school occurs between two days of examination. On such occasions, many of the pupils study three or four hours of the first day after going home, the whole of the next day, and even on the third day before going to school.

(*To be concluded in October issue.*)

THE NECESSITY OF PHYSICAL EDUCATION.†

BY CARL H. HORSCH, M.D., OF DOVER, N.H.,
Member State Board of Health of New Hampshire.

The ancient Egyptians and Persians had their physical training and athletic sports, which are described by Diodorus, Herodotus, Strabo and other writers, but the first systematic physical education as a necessity of popular culture was practiced by the Greeks; they had gymnasiums and better regulated athletic social sports, yet Euripides spoke of Grecian professional athletes as being useless and injurious members of society.

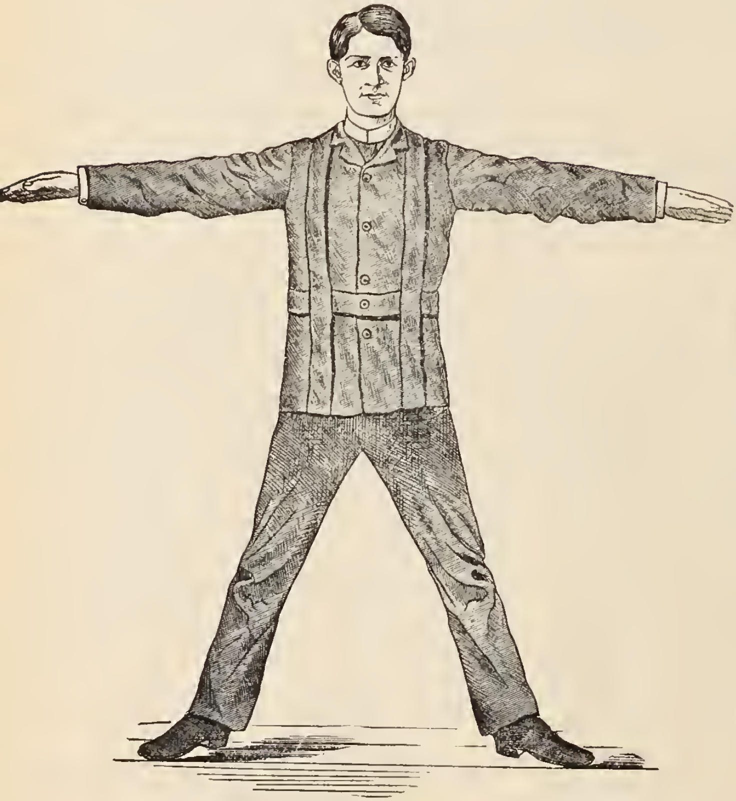
---

* A System of Practical Medicine, by American Authors, vol. v. p. 218.

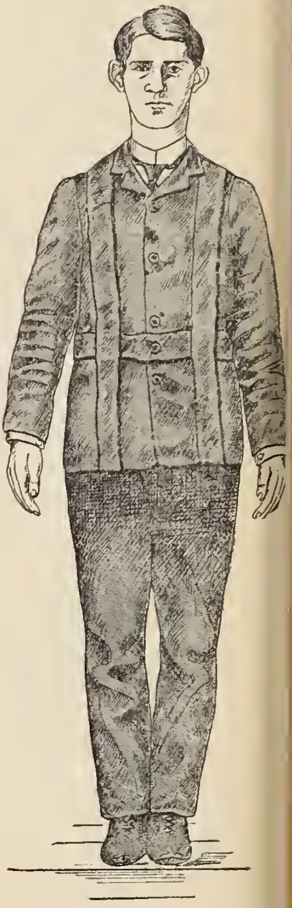
† Insanity, Its Classification, Diagnosis and Treatment. By E. C. Spitzka, M. D.

* Clinical Lectures on Mental Diseases.

† Read before State Sanitary Convention, held in Philadelphia May 12, 13, 14. From advance sheets of Annual Report.



1. Abduction.



2. Adduction.

Later, we find a still better development of physical training among the Dorians and the Spartans. Xenophon called the Spartans the healthiest of all the Greeks.

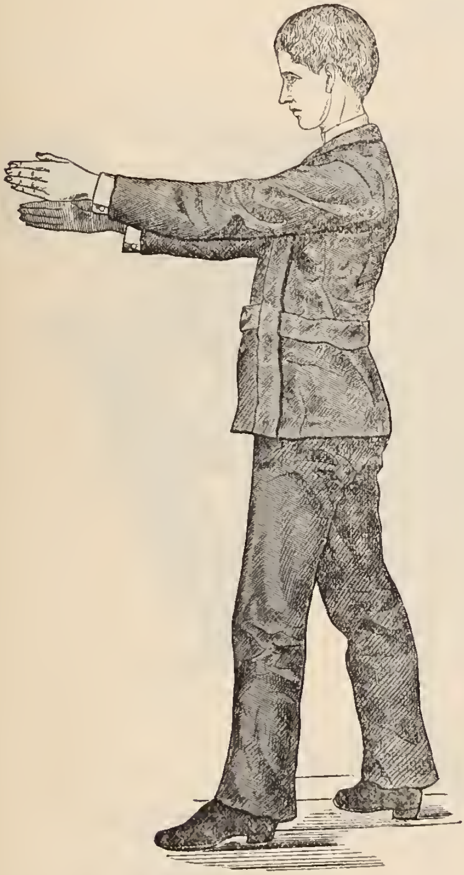
Martin Luther and other reformers advocated gymnastic and physical education, and later advocates were Rousseau in France, Jahn the father of German Turners, Clais in Switzerland, Nachtigall in Denmark, Ling in Sweden, Maclaren in England, Beck, Folen, Dio Lewis and others in America.

In 1849 a law was passed in Switzerland to make calisthenics and gymnastics obligatory in educational institutions. All who have this important sanitary measure at heart hope and wish that this country may follow that example; because mental and physical culture are the most necessary conditions for the maintenance and propagation of republican principles, and for a vigorous, prosperous, free nation.

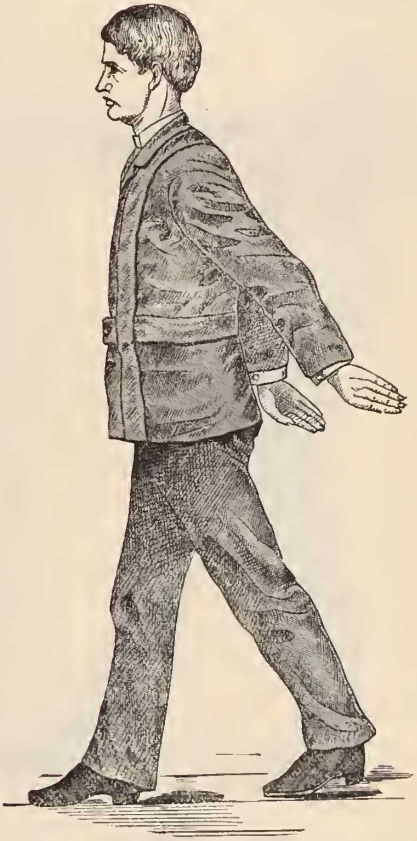
Rightly applied, physical exercise is a

very important aid to circulation and mixing of our blood, digestion and assimilation of the food, growth, production and reproduction of the system.

Breathing is accelerated by rational bodily exercise, and a more appropriate exchange of oxygen, carbonic acid and water secured.



3. Attraction.



4. Retraction.

The heart beats more forcibly and frequently, and the blood and its nourishing constituents are better distributed. Digestion and the appetite are improved on account of increased absorption, waste and greater demand for food. The tone of the nervous system is also improved.

Gaskel and Moose have demonstrated and proved by experiments, that the flow of blood is increased during the period of contraction of the muscular fibres.

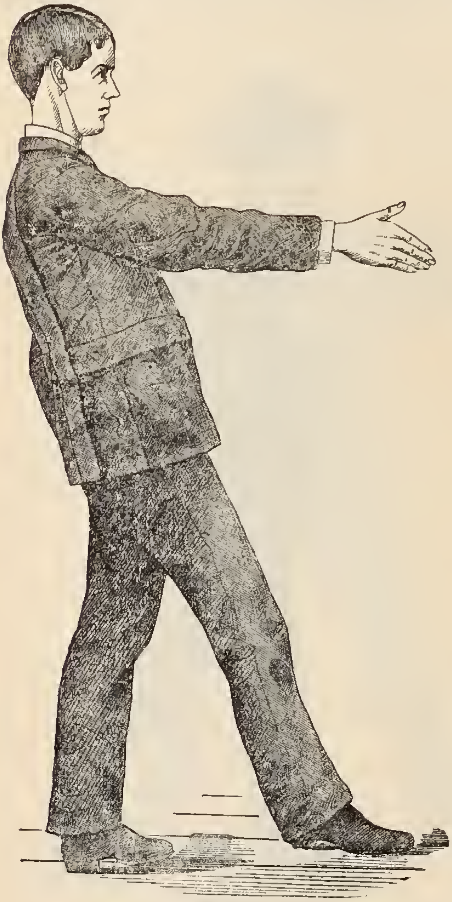
Dr. Edward Smith* has made experiments regarding the effect of exercise on the respiration; he gives the relative quantities of air inspired during various forms of muscular exertion, the amount inspired in the recumbent position at rest being taken as unity in onetable, in a second table the pulmonary elimination of carbonic acid during exercise, as compared with rest."

Pettenkofer and Voit made experiments

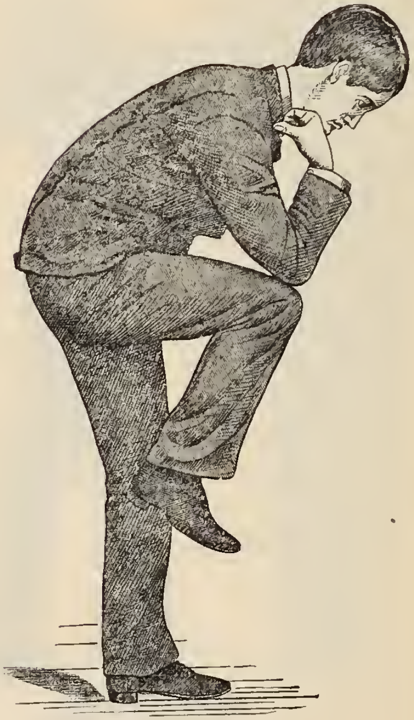
---

* Physical Exercise, by A. Brayton Ball, M. D., Supplement Volume on Hygiene and Public Health. Ziemssen's Cyclopœdia.

"upon the elimination of carbonic acid and absorption of oxygen during rest and exercise;" by the aid of an apparatus they give with a higher degree of accuracy than was attainable by Smith's method, the average elimination of carbonic acid and absorption of oxygen in grains." Other scientific observations have been made by Liebig, Wislicenus, Helmholtz, Flint, and others.



5. Extension.



6. Flexion.

Beneficial kinds of exercises are:

1. Exercise out of doors, which secures the advantage of better air, change of atmospheric pressure, and more light.

2. Exercise out of town, where the air is purer than in thickly settled places.

3. Calisthenic free exercises, by which we use all the voluntary muscles.

4. Vocal gymnastics, whereby the respiratory organs, organs of speech and voice are improved.

5. Hellenic, Swedish gymnastics, turning, and training for rowing, aim at forced muscular contractions, for which there are various apparatus, and whereby the nutrition of the muscles is promoted. It is also necessary to balance our body right. Tissot in France, and Ling in Sweden, established gymnastic exercises for the treatment of certain diseases.

The voluntary muscles classified by by their actions are:

1. Abductor muscles, whereby the extremities are drawn from the middle line of the body.

2. Adductor muscles, which carry the limbs to the middle line of the body.

3. Attraction muscles, whereby we move the parts forward.

7. Rotation.

4. Retraction muscles, move the parts backward.

5. Extensor muscles, stretch the body and extremities.

6. Flexor muscles, bend the body and limbs.

7. Rotator muscles, turn the parts on their axis.

8. Pronator muscles, turn the parts forward, and inward.

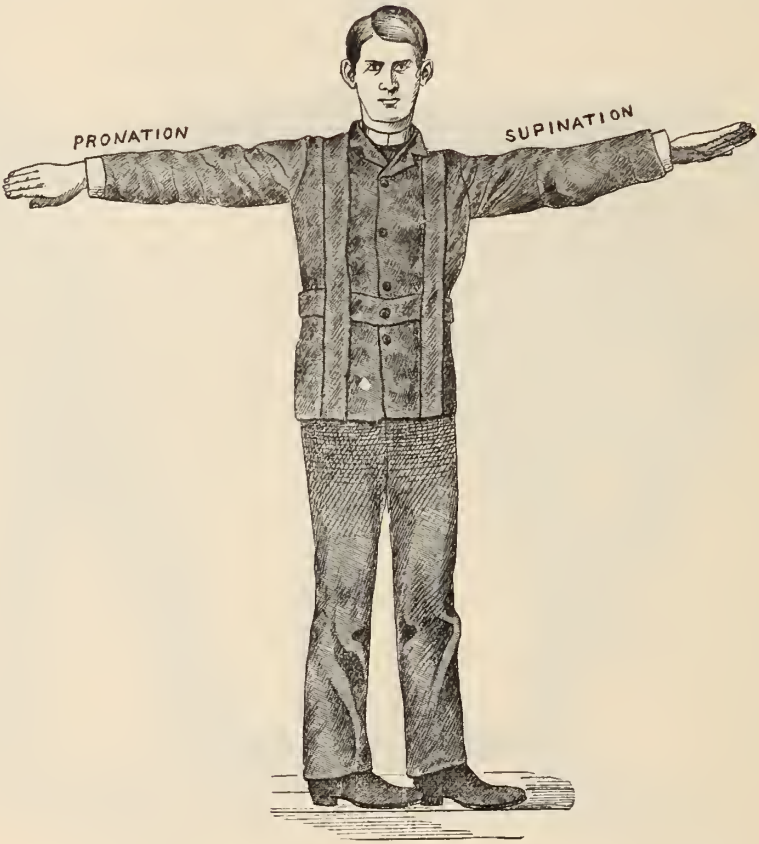
9. Supinator muscles turn backward and outward.

10. Depresser muscles, draw the lips, side of the nose and angle of the mouth down.

11. Levator muscles, lift and raise the parts, as eyelids and lips. The two latter and the sphincter and constrictor muscles are not as much under our command as the other nine kinds of muscles.

Permit me to call the actions of the voluntary muscles the alphabet to a more rational systematic and beneficial exercise of our body. Without the knowledge of these actions calisthenics and gymnastics remain to a greater extent automatical. The necessity of physical education will certainly be better comprehended and valued when we teach fundamental principles. Erasmus Wilson said: "In mind lies the great secret of beneficial exercise, and without it exercise is a misnomer, and a fraud on the constitution."

There are already a number of educational institutions where physical exercises are practiced, and also gymnastic institutions and athletic clubs, the German Turner Vereins and the American Turner Bund; but if intelligently directed rhythmically executed physical exercise is required in every college, and properly arranged places and apparatus for calisthenics and gymnastics are in every school house, then the teachers and scholars can improve their physical conditions and have systematic means for a more useful and symmetrical development of their bodies.



Anthropometric apparatus, by which we can determine breathing power, strength of pull, squeeze, quickness of blow, and other personal data, would be well for annual examinations, and give an impulse for better attention to physical education. When I visited the "International Health Exhibition" in London, in 1884, there were hundreds of persons waiting for a chance at the entrance of the "Anthropometric Laboratory," to be admitted and examined.

The laboratory was arranged by Francis Galton, F. R. S.; he had the following apparatus:

1. For eyesight: (*a*) its keenness; (*b*) the color sense; (*c*) judgment of the eye in estimating length and squareness.

2. Hearing: (*a*) its keenness; (*b*) highest audible note.

3. Touch (exhibition of various instruments).

4. Breathing capacity; his spirometer was used.

5. Strength: (*a*) of pull; (*b*) of squeeze with right and with left hand.

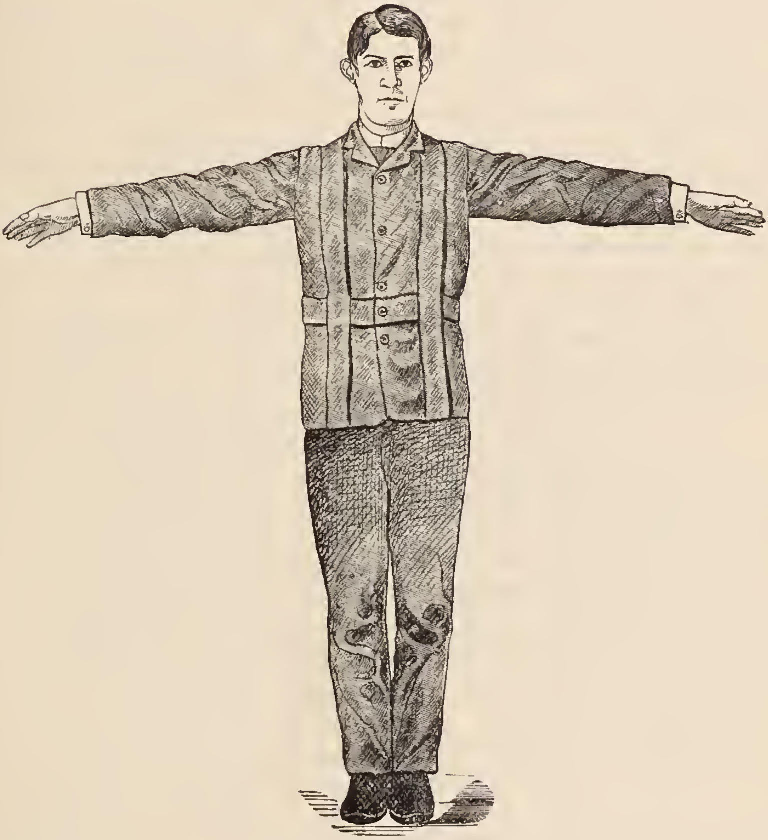
6. Swiftness of blow with fist.

7. Span of the arms.

8. Heights: (*a*) when sitting; (*b*) standing.

If we consider that attention to the various sanitary measures is an imperative duty for all cultured people, and that a better physical development is needed, we hope that they will adopt the recommendations of the Boards of Health, American Public Health Association, and of the present Sanitary Convention.

All intelligent just persons will acknowledge that the efforts made by such sanitary institutions are unselfish and for the welfare of humanity.



EXTENSION.

I think to stretch the body, the right arm and leg, then the left arm and leg is better.

If we commence with the here illustrated motions, we are sure that we have brought the voluntary muscles, which can be entirely controlled by our will, into rational, systematic, physiological actions, and have them better prepared for daily labor, forced muscular exercises, as gymnastics, boat rowing, etc., for a better balance of our body, and a development of agility and vigor.

The following illustrated exercises should be made at least three times a day and every motion three times, which can be executed in about two minutes. There are many vocations where persons use and even overtax some of their voluntary muscles, but do not contract the fibres of the other sets of muscles, wherein circulation of the blood and all functions need that physiological action.

1. Use the abductor muscles by spreading the extremities and move them from the middle line of the body.
2. The adductor muscles are well used by drawing the limbs as close as possible to the middle line of the body; you can do it after each abduction, but it is better to draw the limbs close to the body by separate motions, and when the extremities are about one inch from the body.
3. Attraction muscles are used by making a step forward, and every step throwing the arms forward.
4. Retraction muscles by stepping backward, and with each step throwing the arms backward.
5. Use the extensor muscles by stretching the body, the right arm and leg, then the left arm and leg.
6. The flexor muscles, by bending body, neck, right arm and leg, then left arm and leg.
7. Rotation muscles by turning the head as much as possible to the right and then to the left, and turn the arms and then the legs on their axis.
8. The actions of the pronator and supinator muscles are illustrated on one figure; you find the right hand pronated and the left supinated; first exercise hand and wrist, then feet and ankles.

◆

SEND in your subscription at once, before you forget all about it.

"HEATING AND VENTILATION OF PUBLIC SCHOOL BUILDINGS," AS ILLUSTRATED BY THE SYSTEM INTRODUCED INTO THE NEW HIGH SCHOOL BUILDING AT CHESTER.*

BY D. W. JEFFERIS, M. D., OF CHESTER, PA.

There have been in recent years great advances in the construction and arrangement of public school buildings. We now recognize the fact that the eyes of our children may be permanently injured by insufficient light or light from wrong directions. The furniture is now graded to the size of the pupils "whose feet no longer hang down, anxious in vain to reach the distant floor."

It is pretty well understood that the location should be healthful, and the grounds ample for exercise. But I doubt if in the great majority of cases our heating and ventilation is in any way better than it was in the days of the ten-plate stove and wood fires of our fore-fathers.

It is true that many efforts have been made at improvement, so that we find in the different school rooms stoves, hot-air furnaces, and steam heating apparatus, with direct and indirect radiation. Stoves are objectionable because the room is heated unevenly. The pupils near them suffer from excessive heat, while those in distant parts of the room suffer from cold.

Hot-air furnaces are objectionable because the air is dry and superheated, and the burnt organic materials contained in it act as irritants. Indirect steam heating is perhaps the best of the three, and if the radiators are large enough and the warmed air can reach the rooms in sufficient quantities, leave perhaps but little to be desired, provided proper arrangements could be made to get rid of the air when it becomes contaminated. Still it has never been my good fortune to see a school room where these conditions were complied with, direct heat from radiators in the room being also required to keep it to the proper temperature. A good system of steam heating is necessarily expensive in construction, fuel and repairs, so that boards of education generally are compelled to accept plans which either fail in heat or ventilation, and most often in both.

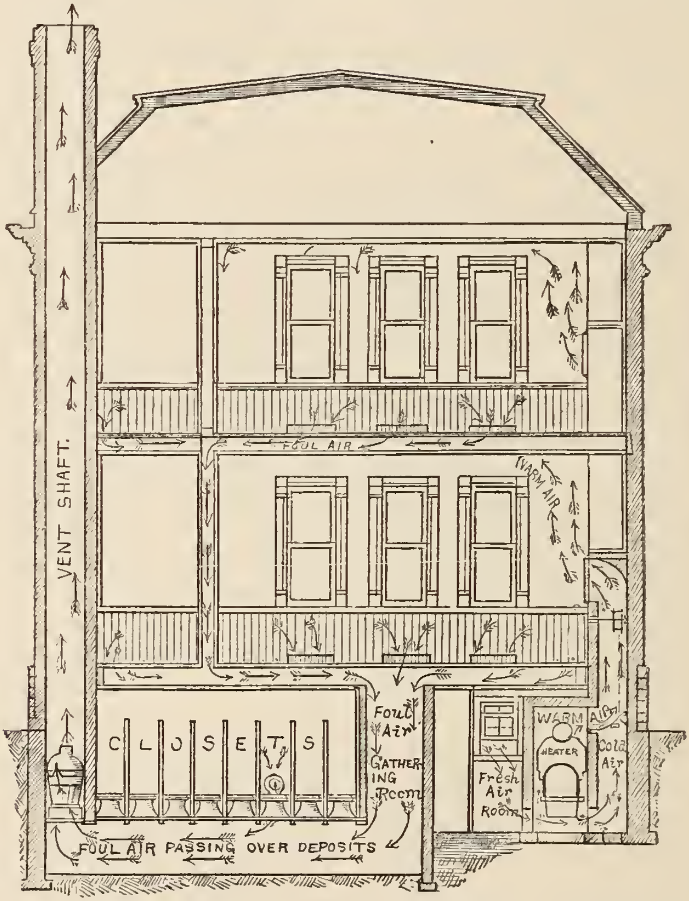
---

*Read before the State Sanitary Convention in Philadelphia, May 12, 13, 14. From advance sheets of Annual Report.

So the air in our school-rooms is impure and unfit for respiration. The teachers and pupils are alike dull, and all complain of cold feet and headaches. The school life, which normally should be bright, pleasant and healthy, is a time of weariness and languor. In it too often are sown the seeds of decay and death.

The careful teacher, instructed as required by our legislators in anatomy, physiology and hygiene, recognizes the necessity for pure air, and ventilates by raising the windows or lowering them from the top, the popular fancy being that bad air ascends. Thus she creates injurious drafts, and by choosing a lesser evil sacrifices the few children who sit near for the benefit of the many in distant and more sheltered parts of the room. So it was a serious question with the building committee of our board whether it would not be as well to make no provision for ventilation, lest our teachers should put undue reliance upon it, and neglect the old and obvious way. If any one, unconversant with the subject, doubts the assertion that, as a rule, school-rooms are not well ventilated, let him spend one day in school visitation; he will then find abundant evidence. It will not be necessary to use instruments of precision, or make chemical analyses to calculate to a nicety the amount of deleterious substances in each cubic foot of air; on the contrary, his sense of smell will at once warn him of danger if he remains long in the contaminated atmosphere. Our new high-school building will contain in round numbers 100,000 cubic feet of air in the different rooms. It will accommodate 400 pupils. As each person will contaminate ten cubic feet of air every minute, which is a sufficiently low estimate for health and high intellectual activity, it will be seen that in twenty-five minutes all the air in the building will be impure, and should be replaced by fresh air; this, in our climate in the winter season, should be warmed air. No arrangement with which I am acquainted, either by stoves, hot-air furnaces, or steam-heating apparatus, will warm sufficient air to effect this. If we cannot take into our high-school building more than 200,000 feet of air every hour, there is insufficient ventilation; for foul air will remain in the rooms until it is replaced by fresh air.

While investigating the subject, our attention was called to the system which we have after full inquiry and examination of buildings in which it was in use, adopted, satisfied that it will fill all our requirements and accomplish all that is guaranteed by the builders—that is, change the air in all the rooms at least three times an hour and keep them at a temperature of 70° in the coldest weather, at a less cost than by stoves, hot air furnaces, or steam-heating apparatus. To warm this large body of air they will place in our basement four large heaters, or more properly air warmers, (see cut). These are built of heavy iron so as to be durable, are patterned after the locomotive boiler—tubular—and hence furnish a large radiating surface—260 feet in each furnace—and retain the heat of the burning fuel as long as possible. To them the outside air is freely admitted; being warmed to a temperature of about 125°, it rises through brick flues to the school rooms above, entering the rooms through ample registers; by a simple arrangement, the teacher can by moving a hand upon a dial regulate its admission, either mixing it with cold air, or, shutting off the supply of warm air altogether, admit only cold air; but she cannot lessen the quantity of air coming into the room. Having entered the room, it rises to the ceiling, forcing the contained air gradually downward, and out through the ventilators placed under each window. These vents are put under the windows for the reason that, there is more or less downward movement of air in this position, as windows are never completely air-tight, and the air in contact with them is cooled from the outside. Going out of the body of the room the now contaminated air still at a temperature of from 60° to 65°, passes directly under the floor; it being laid upon furring strips to afford space for that purpose. This keeps the floor always dry and warm, which is in itself a very great advantage over other methods. In the basement there are foul air gathering rooms, from which the air passes to the ventilating flue built in the smoke stack. I trust I have made the system plain, and you will pardon me if I call your attention to another very important feature which we have adopted in connection with this system. Somebody has said that he



SMEAD'S SYSTEM or DRY CLOSETS Patd. 1885.

could judge of the civilization of a people by the condition of their privies. If our school children are to be judged in this way, their state is low indeed. These closets are the bane of all school officers, filthy and offensive alike to sight and smell. It has seemed impossible to better their condition. Between the foul air gathering rooms and the ventilating shafts, we have placed our closets. Through each set of closets there will rush 150,000 cubic feet of dry, warm air every hour. This air having already accomplished the twofold purposes of warming and ventilation in the rooms above, now is called to another office, and as it sweeps up the big chimney carries with it all the moisture and bad odor in the excreta; leaving behind it only a small quantity of inodorous material which burns readily, and may be actually burned in situ, or thrown into the furnace. No mal-odors can possibly reach the school rooms. During the summer months the free circulation of the air is secured by small furnaces built in the base of the stacks. Thus is obviated all necessity of raising the windows at any season. In winter there can be no drafts, and in summer comparative freedom from dust and noise.

Just as I had concluded this paper I received a letter dated May 5, 1886, from H. S. Jones, Superintendent of Public Schools of Erie, Pa., from which I take this extract:

> We have our building No. 3, a six-teacher house, warmed and ventilated by the Ruttan system. The plan in brief is to have large quantities of warmed air (not hot) pass into the room and pass out under the floor, thence to the ventilating shaft or foul-air stack. The theory as outlined is a fact in No. 3 building. The air at no time during the coldest days gave any indication of impurity, though no windows or so-called ventilators were used to let in fresh air. All air comes in through the heating chamber and passes out under the floors. Most of our other buildings are what are called well ventilated, but it was noticeable when a wave of influenza passed through the town that the pupils in No. 3 suffered much less than the others from illness, or that state of the mucous membrane of the nose that shows more or less congestion which leads to catarrh, etc. The floor at all times being warm made it especially pleasant to the younger pupils, as no windows are opened, no drafts are chilling pupils' heads and shoulders, causing earache, toothache, and colds. Large amounts of warm air cost some more in fuel than hot air, but nothing pays better in health, comfort, and cheerfulness."

Allow me in conclusion to say that I have no interest whatever in any mode of heating, save that general interest which every medical man who is a school officer must take in the well-being of the children entrusted to his charge; and if it were necessary to choose among evils, I would prefer poor books, bad furniture, and low-grade teachers, before poor ventilation. I trust, however, that in our new building we will avoid all these evils, and if you will come to Chester, will be glad to show you on any cold day next winter our success or failure.

DEFECTIVE VISION IN SCHOOL CHILDREN.*

BY PETER D. KEYSER, M. D., OF PHILADELPHIA.

Professor of Ophthalmology in the Medico-Chirurgical College of Philadelphia.

Mr. President: Absence from the city until two days ago prevented me from learning that I was selected to read a paper on the subject of "Defective vision in school children" before this convention. The time has been so short and my engagements so pressing that it was utterly impossible for me to prepare a full and proper paper on this very important subject for this occasion. I have, however, thrown a few ideas and suggestions together for the purpose of opening the discussion, to draw out the feelings and expressions of those present on the subject.

---

*Read before the State Sanitary Convention, held in Philadelphia, May 12, 13 and 14. From advance sheets of annual report.

Up to 1863 the complaints of children in relation to defective vision were made but light of. When complaining of headache, pain in the eyes, sleepiness on study, and inability to see the blackboard or study their lessons, it was taken as an excuse for laziness, inattention, or some form of disordered stomach or liver. The anomalies and defects of refraction of the eye were not known or really in their early beginning of discovery and development. Until the discovery of the ophthalmoscope in 1851 by Helmholtz, the fundus of the eye was as unknown and impenetrable as some of the thick jungles of Africa. Everything in relation to the inward eye was but supposition; but after the discovery and development of this famous little instrument, a new world was opened to us, and one of the most brilliant and beautiful pictures of nature was revealed. In a short time the study of the parts contained in the eyeball, such as the normal anatomy and then the morbid changes found in diseases of that organ were made, and then the normal and abnormal refraction were discovered. This led to the more perfect study of the defects in vision when the fundus appeared normal and there was no disease apparent about the external eye. Prof. v. Graefe, of Berlin, did so much in the detection and classification of the diseases of the inner eye; while Prof. Donders, of Utrecht, Holland, worked out and classified the anomalies of refraction, and published his great work on the subject in 1863. Since then the examination of all classes of people as well as school children has been undertaken by ophthalmologists of all lands and countries; and from their experience, it has been found that these complaints of children when in school or studying have been and are well founded.

These defects are brought more prominently to our view for the reason that the number of children increases as the population augments, and the schools become more frequented, by the compulsory laws on education in the land.

The defects of refraction being more or less congenital, show naturally in the early years of school life, when the eyes are used to accommodate for some length of time at close work in study.

The defect of vision in the eye causing the troubles are divided into two classes, viz: Hypermetropia, or too short an axis, from the ball being too flat anteriorly-posteriorly; and myopia, or too long an axis, from the ball being too long anteriorly-posteriorly. Astigmatism is part of one or both of the above in a special axis; and it may be combined with either in the same eye.

The causes, then, of defective vision in children are, laying aside any congenital defects in the media or tunics of the eye or inflammation of the same, a more or less irregularity in the shape or rotundity of the ball.

Hypermetropia causes great strain upon the accommodation in the act of concentrating the vision in study, and may create varied troubles: pain in the head, in the eye itself, inflammation of the conjunctiva, and of the edges of the lids, and various curious reflex irritations. Careful and proper correction of the defect in refraction by glasses removes the cause of these troubles, and they can often be readily and entirely banished.

Myopia, near-sightedness, is of a more serious character. Here we are more liable to have severe and insidious inflammatory action in the tunics of the eye—the retina, choroid and sclerotic. This form of defect is more apt to be acquired than congenital; and if congenital, is increased by improper use and strain of the eyes. All myopic eyes are more or less diseased, that is, weak and liable to inflammatory action; and this inflammation to be at the fundus of the eye-ball, in the choroid and its neighboring tunics. By this inflammatory action the tissues become softened and from the intra-ocular tension gradually give way backward, and thus elongate the visual line so that the focus does not reach to the retina, and the near-sightedness becomes increased.

The causes of this inflammatory action and increase of myopia are many and various: reading in a bad light, whether in dimly-lighted rooms or at twilight when the clear light of the sun has passed away; reading lying down is injurious. Desks too low, so that the child acquires the habit of stooping over or lolling on the desk, are bad. All these cause the eyes to be brought too near the object, requiring too great convergence of the eyes in use, creating strain, congestion and inflammation. The head being thrown too much forward gives the tendency of an increased flow of blood to the eyes and thus overfilling of the vessels.

To remove all these causes is of the greatest necessity, and the school houses should be better lighted. The windows should be larger to admit more light as well as air, and not sacrificed for the whim and style of architectural beauty of the architect. In other words, the light necessary to be admitted into the rooms should be the first object in building school houses, and not the architectural beauty. The windows should have shades rising from the window-sill, or inside shutters so arranged as to exclude the bright light from the seats near the windows, and not interfere with its passing over into the deeper parts of the room. By this arrangement a better equalization of the light in the room can be obtained.

As the classes are arranged by mental capacity and learning, and not the bodily size of the children, the desks should be made to raise and lower, so that the scolars can be made to sit erectly in front of them. The seats may also be thus made so as to make a comfortable and convenient position for the lower limbs while sitting at the desks.

Another cause of irritation to the eyes is the use of glossy paper in the books. The glare created thereby is very unpleasant, and at times blinding. All books should be of clear, well defined type, black ink, on a plain dull surfaced paper. This has been found the best and most serviceable. Tinted papers do not answer so well. They are more expensive, and where there is a natural weakness of sight (amblyopia) the definition of the letters and figures is not sharp enough for such vision.

A general as well as serious habit in children is that of holding the book very close to the eyes, with the idea that they can comprehend the letters, words and meaning better. This should be guarded against. I have noticed this to be very general in small children, and it should be carefully watched and corrected, as the strain upon the organs of vision in this way often engenders the first seeds of many of the inflammatory troubles in the fundus of the eye, and causes serious near-sightedness.

Irregularity of vision or astigmatism is found mostly in the shape of the cornea, so that the rays of light passing through that part into the eye are not equally refracted. This is mostly of a congenital form, and should be corrected by the appropriate cylindrical glasses.

Defective vision is also caused by opacities in the cornea, remaining from some form of inflammation or ulceration. In many cases this may be relieved or removed by the proper medical or surgical treatment while the subject is still young.

The proper seating of pupils in relation to the light should be arranged. Up to within a few years the teacher was seated between the windows, with the blackboard behind her, and the desks so placed that the pupils faced the light of the open windows. This is a very injurious position; the light falling directly in front of their eyes, and at the same time shading the black-board, requires strain to decipher the figures or writing thereon. The light should come in from the side over the shoulder. The left one is the better, as it falls clearly upon the books and slate without any shade from either hand or pencil.

Defect of color-perception hardly comes into the discussion at this time, but it is well that children should be educated in the detection of all shades of color while young. There are cases of congenital defects which cannot be remedied, while there are others of a dulness in perception which can be brightened up by careful and proper education.

All these suggestions are of such great necessity to protect the vision of our children, that I think the State Board of Health should have the supervision of the building and furnishing of all school houses, as well as the inspection of the same and the pupils during the seasons of study.

TRIPLETS.

The History of Three Simultaneous Epidemics of Typhoid Fever.

BY BENJAMIN LEE, A. M., M. D., OF PHILADELPHIA.

Secretary State Board of Health of Pennsylvania.

Three epidemics of typhoid fever in full blast at the same time in different parts of the State are a sufficient commentary on the let-well-enough-alone policy which has guided its sanitary legislation in years past, and a convincing proof that the time is ripe for the creation of a State Board of Health. The first of these in point of time was that at West Elizabeth, a mining village of about 1000 inhabitants in Jefferson township, Allegheny county, on the Monongahela river, 21 miles nearly south of Pittsburgh. The first intimation the Board had of its existence was contained in a letter from the town council, dated July 17, requesting an investigation as to the cause of a disease which was spreading rapidly in the town and had caused one death. The Secretary immediately telegraphed to Inspector Hunter, Inspector of the Allegheny district, requesting him to visit the place and report.

He reported eighty-nine cases of a fever considered by a majority of physicians in attendance to be typhoid, while others pronounced it malarial. One of the earliest cases, No. 2, in fact, and soon after No. 3, were those of a dairy-man and his wife (the latter fatal); and it was noticed that a very large proportion of the cases following occurred among his customers.

Mr. Hunter found the whole sanitary condition of the village as bad as could well be, "situated in a kind of basin, the middle being swampy ground, with but one sewer, the privies neglected, and the wells exposed to pollution from them." Stimulated by the Board, the authorities at once went to work to remedy the most obnoxious of these nuisances. Documents of the Board were freely distributed, giving instructions with regard to disinfection. Samples of water were taken from a large number of wells, and tested under the direction of Dr. Snavely, the Registrar of Pittsburgh. Several found to contain organic matter were condemned and sealed. At the request of the Board, Dr. Snavely visited West Elizabeth in order to determine the nature of the disease. All the cases which he saw presented symptoms of malarial rather than typhoid fever. A few days later, however, an opportunity for an autopsy presented itself in the person of a patient whom he had not seen. Of this he reports as follows under date of July 30th: "On Thursday, July 29th, I visited the town of West Elizabeth, and in the presence of Drs. Pierce, McGrew, Welsh, Shaffer, Fife, Riggs, Van Kirk, of East Elizabeth, and Van Kirk, of McKeesport, examined the body of — Graham, aged 35 years. The attending physician, Dr. Pierce, stated that his illness was of 22 days duration. Autopsy 22 hours after death. The characteristic lesions of typhoid fever were demonstrated to the satisfaction of all the physicians present."

Without waiting for this report, however, the Secretary had telegraphed orders to the town authorities that all discharges of the sick must be disinfected and buried. This order was followed up by the following letter of instructions to the physicians of the place:

COMMONWEALTH OF PENNSYLVANIA,
STATE BOARD OF HEALTH,
EXECUTIVE OFFICE,
1532 PINE ST., PHILADELPHIA.

DEAR DOCTOR: The State Board of Health requests that you will keep a record of all cases under your care in connection with the present epidemic at West Elizabeth, and report to this office at the end of each week, giving name of patient, sex, age, when taken sick, water used, character of illness, result, and any other points that you may deem of interest. Whether all the cases are typhoid fever or not, the interests of the public health demand that their excreta should be treated as though they were. You will therefore give positive instructions to have the discharges disinfected on passing, and then buried. The sick must not be allowed to use the same out-houses as the well, even during convalescence. All the privy vaults and cess-pools in the neighborhood should be disinfected, emptied, and then disinfected again. The enclosed circular contains instructions for disinfection.

I have the honor to be,
Yours respectfully,
BENJAMIN LEE,
Secretary and Executive Officer.

The following leader from the Pittsburgh *Times* of July 30th, shows that the efforts of the Board to seek out the cause and stay the ravages of this epidemic are not unappreciated:

IT HAS PROVED ITS RIGHT TO BE.

The service rendered by the State Board of Health to the people of West Elizabeth in their affliction by the outbreak of fever, is an illustration close to home of the usefulness of that organization.

In such cases people are likely to lose their heads, and to need above everything directions as to what they should do. They call meetings and discuss the perils, but disperse as undecided as when they assembled. The local doctors are usually busy with the sick, and have little time to give counsel as to sanitary arrangements. Besides that, they are pretty sure to differ as to the origin and nature of the pestilence, and as to the best means of suppressing it. The State Board, stepping in with a system of rules concerning the closing of wells and preparation of hospital accommodations, is welcomed as a succorer, and its instructions are the means of restoring confidence and leading to intelligent treatment of the danger.

The Board has hardly reached the end of the first year of its existence, but what it has done, as at Elizabeth, and at places still nearer Pittsburgh, in abolishing nuisances perilous to health, is sufficient argument for its right to be, and to be amply supported.

Previous to the outbreak at West Elizabeth, the Board had at the urgent request of Crosby Gray, Esq., the efficient and energetic health officer of Pittsburgh, made an investigation into the condition of certain bone boiling establishments known in the dialect of that region as "schinderies," which it was feared might pollute the Monongahela river, from which what is called South Pittsburgh draws its water supply. This is the region of the city alluded to by the Secretary as so faulty in its drainage arrangements, in his paper before the Sanitary Convention entitled "An Epidemic of Diphtheria Traced to its Source."

There is reason to fear that it is likely again to afford a text for a sanitary sermon. The result of the inspection was decidedly condemnatory, and the occurrence of the above described pestilence farther up the stream evidently intensified the risk. Scarcely had the necessary orders for the abatement of these nuisances been issued, when their importance was made apparent by the simultaneous occurrence of several cases of undoubted typhoid fever in South Pittsburgh. Two cases of the same disease have been discovered on a "shanty-boat," on the Allegheny river, lying not far from the influent pipe of the Allegheny water works. The aspect of affairs has thus become so threatening that the Secretary has requested Dr. Germer, the President of the Board, to proceed to Pittsburgh and confer with Dr. McClelland of the Board, Mr. Hunter, the Inspector, and the local health authorities, as to the best means to adopt to stamp out the infection.

In the meantime the Board has found it necessary to investigate an alarming outbreak of fever among the employés of the Glasgow Iron Co., and their families near Pottstown, Montgomery county. This place was visited by the Secretary, accompanied by the Inspector of the Delaware district, Prof. Wm. B. Atkinson, Thursday, July 29th. This company employ about 135 hands, and nearly half of them were then reported as on the sick list. Besides these, members of the families of those residing quite near the works were also ill. Twelve of them were seen in various stages of a low fever which is thus well described by Dr. H. Y. Neiman, of Pottstown, in summing up his report of sixteen cases under his care. "All these cases had typhoid symptoms, and with few exceptions diarrhœa. One had hemorrhage from the bowels. All commenced in the same way, with chills, pain in the back and limbs very severe, at times fearful, pain over the entire cranial region, loss of appetite, delirium, dry and coated tongue, nausea and often vomiting, pulse hard and full, generally averaging from 80 to 80, except in those of true typhoid fever, where it ran up considerably higher.

All of these cases are convalescent; some of them got well in six or eight days. Manifestly then they were not all typhoid; but some, as Inspector Atkinson satisfied himself in a later visit, were manifestly so. This being the case, the same circular of instructions was issued to the physicians, as in the case of the West Elizabeth epidemic. In their efforts to improve the sanitary conditions of the homes of the employés, the Board is ably and cheerfully seconded by the officers of the company, who spare neither trouble nor expense to carry out its recommendations. The source of this outbreak was unquestionably a well in the company's yard, on which, in consequence of its supposed superior purity, all the neighborhood depended for its drinking water. The following is the analysis of the three water supplies used by those who were apparently exposed alike to the infection. It was made by Messrs. Salom and Westesson of Philadelphia, and is expressed in *milligrammes per litre.*

	Ammonia.	
	Free.	Albuminoid.
No. 1, the abandoned spring,	.114	.32.
No. 2, the spring-house well,	.014	.28.
No. 3, the reservoir,	.026	.26.

The fact was clearly demonstrated that all of those who were seized with the epidemic had drunk of the water from the pump in the yard, marked above, the "abandoned spring," while none of those who had used the water from the other two sources exclusively, were attacked. The well has been pumped dry under tne direction of the Board, and no decomposed matter found in it. The source of its pollution remains still a mystery, which the Board hopes to unravel.

The Annals of Hygiene.

THE OFFICIAL ORGAN OF THE

STATE BOARD OF HEALTH OF PENNSYLVANIA.

PUBLISHED MONTHLY.

Subscription, two dollars ($2.00) a year in advance.
Address all communications to

JOSEPH F. EDWARDS, M. D.,
224 S. 16th Street,
PHILADELPHIA, PA.

MEMBERS OF THE BOARD.

Edward Wm. Germer, M. D., Erie, President.
Pemberton Dudley, M. D., Philadelphia.
David Engleman, M. D., Easton.
J. F. Edwards, M. D., Philadelphia.
Rudolph Hering, C. E., Philadelphia.
J. H. McClelland, M. D., Pittsburgh.
Benjamin Lee, A. M., M, D., Sec'y, and Executive Officer, 1532 Pine St., Philadelphia.

Editorial.

QUERIES AND REPLIES.

We stated in our first issue, and we now reiterate, that we will be pleased to have our readers ask questions in relation to hygiene, personal or public. These queries will always be answered by those thoroughly competent to do so.

BACK NUMBERS.

This journal became the "Official Organ" of the State Board of Health of Pennsylvania with the issue of July, 1886. We have on hand, and can supply, the issues for July and August, so that subscriptions may commence from July 1st, 1886.

CLUB RATES.

It will, no doubt, suggest itself to some of the School Superintendents who receive a sample copy of this journal, that it would be well to have it supplied regularly to all their teachers. We would say to such that we will furnish the journal to clubs at special rates, to be had on application.

ARCHITECTURAL DEFECTS IN SCHOOL BUILDINGS.

Before the recent Sanitary Convention in Philadelphia, Dr. J. H. McClelland, of Pittsburgh, a member of the Pennsylvania State Board of Health, remarked that although he was down in the programme for a paper on architectural defects in school buildings, he would spare the convention that infliction, as the ground had been pretty well covered by other papers, but would be content with a few remarks on the ventilation of such buildings, suggested by the paper just read (see page 240).

Dr. M., said: "No less an authority than Dr. Billings, of Washington, has recently made the assertion, if I remember aright, that there are not twenty properly ventilated school buildings in the country. My observation would certainly lead me to the same conclusion. The result is as might be expected. Teachers and children are compelled to live for hours daily in a vile poisonous atmosphere, laying the foundation for diseases of the lungs, and impairing the general health to a greater or less extent. Besides, children cannot do the required work, have the necessary mental vigor or activity, sustained, as they are, by impure, stupefying air. Parents should see to it; make it a personal matter. The health and often the lives of their children are in daily hazard. My observation and experience in hospital building have convinced me that the only really effective method of getting rid of impure air is by aspiration. *Pull it out.* Any system that does this successfully is good."

DAMP CELLARS.

The importance of having dry cellars cannot be too strongly urged upon the people. We recently visited an afflicted family at Phœnix Park (near Pottsville, Pa.,) where five members of the family were sick with a typhoid disease and two had died, making seven cases in all. We made a very thorough examination of the surroundings of this house, had the drinking water analyzed, and were forced, by exclusion, to the conclusion that the sickness in this case was caused by a damp cellar.

A stream from a worked-out mine keeps the locality marshy and the cellar wet. To obviate this, a drain had been run from the cellar to a neighboring creek. This drain had become stopped, and some inches of water had accumulated in the cellar. Had this family known that dynamite was in the cellar, they would not have slept easily until it was removed; but with this insidious foe to life and health they ate and slept contentedly until the favorite child, a boy of eleven, was taken ill and died. Then, suspecting the damp cellar, the drain was cleaned out; but it was too late, the mischief was done, the family was infected, and all of the children had the disease. As I looked at the bereaved and saddened mother, I could but pity her want of knowledge, that had brought such terrible affliction. *The doctor could not cure, but the parents could have prevented.* Do not live over a damp cellar for one hour.

THE HYGIENE OF MARRIAGE.

While it is a law of the animal kingdom, and the vegetable as well, that reproduction at a period too early, that is before the parents are well developed, will result in offspring of an inferior quality both of body and mind, yet Dr. Busey, of Washington, very truly tells us that proof of this fact is repeatedly found in the human race. Unfortunately, at the present day, in this country, the passions and impulses are cultivated by indulgences; "young America" grows faster than his ancestors did in every point, and as a part of this precocious development, the sexual functions and passions come into play at a very early period, and early desires, gratified by early marriages, are the result.

These immature men and women (it would be more correct to say *boys* and *girls*) require all the constructive force, all the vital principle they possess, to complete the development of their own bodies; and when they part with some of this to create a new being, they not only rob themselves of that which is needful, but they only give to the new formation an imperfect force, which is usually incapable of forming a perfect creature.

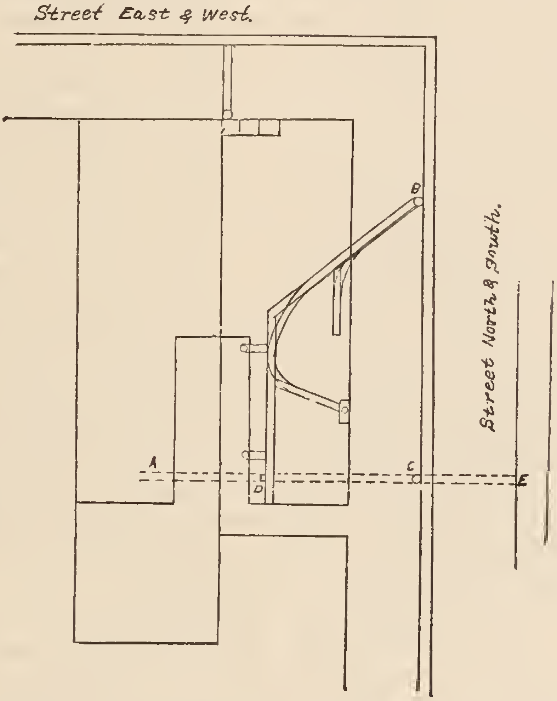
To say nothing of the moral aspect of early marriages, which is a grave point, because it is a notorious fact that the majority of very early marriages turn out unhappily, owing to the fact that the contracting parties are too young to have the sense to realize what they are doing, and soon tire of the self-denials that even the happiest married life demands—to say nothing of this, we must admit that very early marriages have a strong tendency to produce inferior offspring, to deteriorate the physical power of our people, and thus to materially interfere with our productive power as a nation. The question deserves grave consideration, for early marriages are becoming very prevalent in this country. We would say, as a general rule, for the guidance of the people, that the man should be about twenty-five and the woman twenty years of age.

Other things being equal, the nearer we conform to this rule, the stronger will our children be, and the happier will be our married lives.

THE PRESENCE OF SEWER GAS.

An interesting and instructive instance showing how the culpability or stupidity of so-called "sanitary plumbers" may endanger the health of families, occurred in Philadelphia in January, 1883.

A corner property had been purchased for the purpose of erecting a modern dwelling. On the lot stood a small two story brick tenement, an old time landmark, occupying about one-half of the ground, and which was to be removed to give place for the new structure.



A previous sad experience, incident to defective drainage, had so impressed the owner with the importance of a perfect sanitary system of plumbing, that he secured the services of a skillful and experienced engineer, the adoption of whose suggestions it was thought would secure all that might be expected from the most advanced methods of modern plumbing.

In the specifications furnished by the architect and sanitary engineer, the plumber was directed to remove "all old drain pipes," and as it was known that the owner of the adjoining property had, years before, been accorded the privilege of laying a soil-pipe through the yard of the corner property (Fig. A), for the purpose of making connection with the sewer in the street running north and south, he was duly notified that the excavation for the foundation of the new structure would necessitate the removal of said pipe. With this notice he promptly complied by having the drainage of his house conveyed to a sewer of later construction in the street running east and west, and upon which his dwelling fronted.

At completion the house passed into other hands, and the new owner had not occupied it long before he noticed in certain rooms an almost overpowering odor of sewer-gas. Being familiar with the admirable system of drainage of the house, and the thorough manner in which the plan had been executed, and indeed seeing no way for the effluvium to get from the sewer through the numerous traps and ventilators arranged for its interception, the plumber who had superintended the work during the erection of the house was requested to make a thorough examination, and he reported everything in good order, and assured the occupant that it was simply impossible for sewer-gas to pass in beyond the trap at the curb line, which was supplied with a ventilator, Fig. B. With this assurance the matter was temporarily forgotten, but it was soon discovered that sewer-gas issued from a register in a third-story room in which two children slept, and a servant reported "a smell of gas" in a dining-room closet, which also proved to be sewer-gas. Every effort was then made to discover the cause of the presence of the gas. Essence of peppermint was poured down the sinks, that being the usual way of discovering the existence of open joints or other defects in the drainage system of a dwelling, and on the plumber's suggesting as a remote possibility that connection might exist with a neighboring defective drain, through the agency of a rat, mint was again employed in an adjoining house, but without effect. Almost the entire yard was dug up in a vague search for the source of the trouble, and at last the plumber frankly owned that he could not account for it.

Another plumber of much experience was then consulted, and in the course of his investigation he removed some of the brick of the pavement near the curb-line, and there found a ventilator, Fig. C, proceeding from the trap of what proved to be the old drain-pipe already referred to. It had been cut off within the foundation wall nearest the adjoining property, Fig. D. which it drained, and continued thence unbroken, passing under the foundation nearest the street to the sewer, Fig. E. From the point where the pipe was cut an uninterrupted current of sewer-gas found its way into the air space formed by the "stripping" of the wall, and thence into the upper rooms from every open space along the washboarding, and into the warm air conductors through their slip joints, and thus the entire atmosphere of the house was contaminated. The remedy was simple enough; the old pipe was removed and the opening into the sewer closed.

There are valuable lessons to be learned from this incident. The privilege of laying soil-pipes across a neighbor's property is fraught with danger, and should never be granted, alterations in dwellings often make it necessary to change the course of the drainage, and the use of the privilege may be discontinued, and the existence of the old pipe forgotten, or the properties may fall into the hands of other owners entirely ignorant of the existence of such a source of contamination, while all the time it may be stealthily pouring its deadly miasma into the sleeping-rooms of a dwelling, though every precaution has been taken there to secure perfect sanitary conditions.

An offensive odor in any part of a dwelling should be traced to its source at any cost. Sewer-gas in large cities is always mixed with a large percentage of illuminating gas which finds its way into the sewer from leaky mains, hence it is often mistaken for "a slight leak in the gas pipes."

The odor of sewer-gas may first be detected in a room or closet or part of the house remote from its point of entrance; this may be explained by its buoyant nature, which enables it to circulate up between partitions and along walls which are "stripped," making its escape through every crevice and open place.

PREVENTION OF CONSUMPTION.

In spite of the fact that consumption of the lungs annually kills more persons than all other diseases put together, physicians are to-day, practically, as unable to cope with it as they were a hundred years ago. The very best doctor can tell you when you have consumption, and can give you remedies that will "tone you up," and maybe allow you to live a little longer, but he cannot *cure* the disease. In the very great majority of cases, when the disease is once established it is only a matter of time, the disease running a faster course in some than in others, but in nearly all running steadily on to the graveyard. A few, a very few cases are cured, but so few as to be hardly worth noting.

But we can, in the majority of cases, *prevent* the disease. Look about among your friends, and you will rarely see one with a full, broad, well-developed chest suffering from consumption; this disease finds its victims among those who have narrow, flat, sunken chests, who are round shouldered, and in whom a line stretched across the chest from shoulder to shoulder would be found *concave* instead of *convex*, as it should be. Breathing bad air is a most common cause of the disease, and if any of our friends, whose children attend certain of the public schools that we have had occasion recently to visit, read this article, they will learn that the seeds of the disease are being now planted in their children's lungs. We have seen some of these buildings where, in a room thirty feet square and twelve feet high, one hundred children are confined for several hours daily. This allows only 108 cubic feet of air-space for each child, when it ought to be at least from five to ten times as great.

The ventilation is also very faulty in these rooms, and the children are continually breathing and rebreathing this bad air, that is *sure* to cause sickness, and very likely to give them consumption in after life.

The remedy for this condition is obvious; you pay taxes for schools for your children, and you must insist that proper accommodations shall be afforded. While, for instance, the miners in our coal regions are working hundreds of feet beneath the ground, they are breathing pure air that their employers furnish them at great cost, because they know that they can do more work when they breathe pure air; but their children are at the same time breathing a very foul atmosphere. You should have school-rooms for your children where each child will have at least 500 cubic feet of air-space. A room thirty feet square and twelve feet high should not contain more than twenty children.

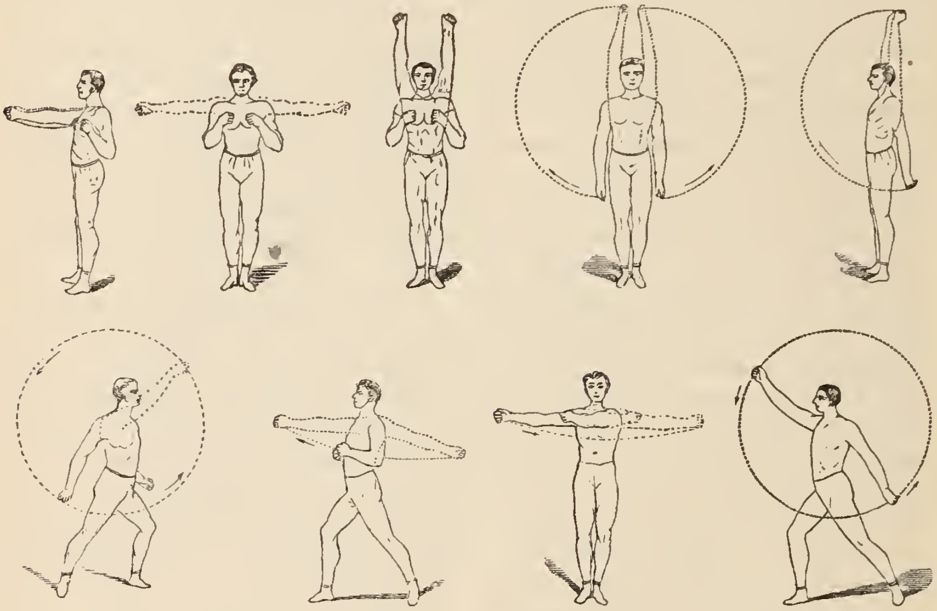
When you have accomplished this point, you have taken the first step in the prevention of consumption, and you can accomplish it if you desire, for if you let your authorities know that you want sufficient accommodation and are willing to pay for it, they will give it to you. The majority of persons in this world want to do the *right thing*, if they are told how to do it.

When you have secured pure air and plenty of it, the next step is to cultivate habits of exercise that will tend to develop, to expand the chest. In rural and suburban districts children will derive enough exercise for the muscles of the legs in walking to and from school; but, sitting for hours bending over a desk, they become round shouldered and get no exercise for the muscles of the upper part of the body. To overcome this, certain habits should be encouraged. In the first place the lungs should be fully expanded by drawing in all the air that is possible;

this process will be aided by throwing the shoulders well back, and you should encourage your children to do this frequently in the open air when going to and coming from school. Children are easily bribed, and we would suggest to school teachers a simple and effective way of accomplishing this desirable end. This forcible expansion of the lungs will enlarge the chest and increase its circumference. Then let the teacher, at the beginning of the session, measure each child's chest and record the circumference, then explain and demonstrate to them how to forcibly fill the lungs, and offer a premium at the end of the session to the child who shall have most increased the circumference of his chest; make it worth their while to expand their lungs, as much so as we now do for them to expand their minds, and the result will be wonderful.

We will be glad to publish the results of such experiments, as they will prove most valuable.

Then comes exercise of the various muscles about the chest and arms; which is illustrated in the accompanying diagrams.



Take advantage of the boy's or girl's ambition; see how many times they can perform these various movements; let them commence with say ten of each, and together in class go through them daily for one week; then increase to fifteen times, and so on, adding five each week, and at the close of the session have a public exhibition, inviting the parents and friends, and awarding a prize to the child who can perform these movements the greatest number of times. The desire to secure the prize will induce the children to exercise at home, and parents will be surprised and gratified to notice their puny, flat-chested children gradually changing into muscular, robust, full-chested boys and girls. Follow these few simple recommendations, give pure air and proper exercise, and you can feel sure that very few of your children will ever have consumption, and that by degrees this terrible disease will become eradicated.

Notes and Comments.

CHOLERA MORTALITY IN 1885.

It is reliably estimated that not less than 100,000 deaths were caused in Spain by cholera last summer, more than 2,000 in France, and over 4,000 in Italy and its provinces.

TYPHOID FEVER IN THE UNITED STATES.

About twenty-five thousand deaths from typhoid fever occur in this country annually, and this represents fully one hundred and fifty thousand cases of the disease. The hundred and twenty-five thousand persons who recover, lose six weeks out of their lives, and carry perhaps some vestiges of the fever's influence for years.

PUBLIC DISINFECTION INSTITUTE.

A public disinfection institute has been opened in Berlin under governmental direction. There are chambers capable of completety disinfecting the clothes of two hundred families daily. All conceivable apparatus for thorough disinfection is provided. Such an institution would find large opportunities for usefulness in this country.

WILLIAM H. VANDERBILT AND HIS APPETITE.

"A good night's rest and an appetite for my breakfast," was the Christmas present the late Wm. H. Vanderbilt told his little grandchild he would like, in answer to her query as to what he wanted for Christmas.

One might as well expect the devil to say his prayers and take a bath in "holy water," as for a man who lived as Vanderbilt lived to enjoy "a good night's rest and an appetite for his breakfast."

MILK-POISONING AT LONG BRANCH.

An outbreak of illness from bad milk has recently occurred at Long Branch in the Ocean Wave Hotel. A large number of the guests and attaches were made ill, suffering from vomiting and purging. The proprietor was able to trace the trouble to milk which had become stale on the dealer's hands, and to which he had added chemicals to preserve and freshen it.

LORD PALMERSTON'S INK-STAND.

It is related of Lord Palmerston that he so thoroughly appreciated the necessity of exercise to one engaged, as he was, in sedentary work, that he had two high desks, one at either end of his room. On one he did his writing, standing, on the other he had his inkstand, so that everytime he wanted ink, he was obliged to walk twice the length of the room. Whether this story be true or not, it points an instructive lesson.

TYPHOID FEVER MORTALITY.

The Secretary of the Board of Health of Baltimore has made a compilation of the number of deaths annually and in the aggregate from typhoid fever for eleven years: 1875–85=1904; 173 1-11 per annum: *One in every 46.5 of the deaths from all causes.* The money value of these lives and the costs involved in their sickness and death, estimated at the usual value of lives in the prime of life, those commonly carried off by typhoid fever—

the sum squandered in this criminal mortality—would have been sufficient to sewer the city.

COLIC AND DRINKING WATER.

Dr. John Ward attributes an outbreak of colic on a steamship to contamination of the water-supply by zinc derived from zinc plates fixed in the boiler from which this water was condensed. It appears that the intention had been to renew the water-supply of the ship at Batavia, but that this was not done from fear that the water at that port was contaminated by cholera contagium, and the supply for the remainder of the voyage was obtained by the distillation of sea-water. On testing the water it was found to contain zinc.

THE DAIRIES OF PARIS.

St. Louis, as well as all of our large cities, would do well to take example from Paris, where we learn the Council of Health has decided to abolish dairy stables, in which upwards of five thousand cows are kept in stalls and often fed unwholesome food. Careful investigation shows that a majotity of the animals are diseased, and that their milk swarms with bacilli similar to the bacilli of consumption. As it has already been proven that milk is a ready communicator of typhoid fever germs, the closest sanitary scrutiny should be exercised over the dairy supplies of cities.

DISPOSAL OF HUMAN REFUSE.

We have always held that the proper way of disposing of human refuse is to use it as manure. We learn, as additional verification of our idea, that a successful experiment is being carried on in Croydon, England, where a farm of six hundred acres disposes of the sewage of 66,000 persons. During the twenty years in which it has been in operation, it has never been the occasion of any nuisance or disease in the neighborhood. The value of the farm has increased from $5.00 to $45.00 per acre, and it still disposes of the sewage as efficiently as in the commencement.

TO PRESERVE RAW MEAT.

M. le Comte d' Adhémar recently submitted to the Academy of Sciences of Paris a method which he has discovered of preserving raw meat when exposed to the air. The process consists of destroying, by means of a certain gas, all germs of putrefaction which are met with in the deeper parts of the tissues. The meat retains all its nutritious qualities, and the taste and color of it are unchanged. By this means, meat can be preserved, and remains good for one or two months; if a slight dryness occur, it is merely due to evaporation of the moisture.

SCHOOL-ROOMS—A SUM IN HYGIENIC ARITHMETIC.

It cannot be denied that nearly every school-room in the United States is overcrowded. Not to be too exacting, we would say that a school-room *ought* to furnish five hundred cubic feet of air space for each occupant. Let us see what this means. 40×40=1600×12=19,200. Thus a room forty feet square and twelve feet high should not contain more than thirty-six pupils. Are there any public school rooms in the country, where such accommodation is afforded? if so, we would like to hear from them.

FLIES AS SANITARY INSPECTORS.

The *Sanitarian* records an instance of flies acting as sanitary inspectors. In one of the rooms of a residence offensive odors were detected, but their exact source could not be located. The carpets were raised, and a carpenter was engaged to take up the entire floor. At this moment a visitor suggested that an appeal be made to the instinct of the fly. Two "blue-bottles" were accordingly brought from a neighboring stable, and the doors and windows of the room closed. The flies soon settled upon one of the cracks in the floor, and when the boards were raised at this point a decomposed rat was found.

SLEEPING WITH THE HEAD LOW.

A German writer claims that this is the heathiest way to sleep. He has now slept with his feet higher than his head for the past four years, and his experience leads him to commend the method most highly. He says in this way the brain receives a more plentiful blood-supply and is consequently better nourished. Another advantage which Dr. Meuli-Hilty claims for his method is that it is prophylactic against consumption. The apices of the lungs being dependent, receive a more plentiful blood-supply, and are thus rendered stronger, and less liable to become the point of origin of disease. Certainly it can do no harm to give his suggestion a trial, and we will be glad to record the results.

CORPORAL PUNISHMENT IN SCHOOLS.

From a hygienic point of view, corporal punishment is not to be encouraged. When a teacher "thrashes" a pupil, he or she is generally in anger, and from this very reason, is not able to accurately gauge the amount of force that is meted out. A sharp blow on the ear has caused incurable deafness, and it has more than once occurred that a boy or girl has been ruined for life by corporal punishment inflicted at school. We are pleased to see that this method of correction is deprecated in the last report of the Massachusetts School Board, wherein it is stated that "a teacher who finds it necessary to use corporal punishment to any appreciable extent, gives evidence of a want of ability to control."

POISONING BY ASPARAGUS.

A recent case of poisoning by eating canned asparagus has been investigated by Buchner. On examination of a can of the asparagus, it was found that the liquid was free from tin and lead, but that the vegetable contained both metals. It seems to follow from this, that the metals which are dissolved from the can by the juices form solid compounds with certain substances in the asparagus. Intermingled with the contents of the can were numerous little shot of tin containing lead, which were without doubt introduced during the soldering. (*Chem Zeit.*, 10, 368). It is very important, in the preparation of canned goods, that no solder fall into the can. In the present state of uncertainty as regards ferments and the formation of ptomaines, it would be only right to place on each can the date of its putting up.

CHILDREN'S HOLIDAY COLONIES IN WARSAW.

According to Dr. Gustaw Frietsche's report for 1885 (*Zdrowie*, May, 1886, p. 28), during last summer 204 sickly pauper children (124 boys and 80 girls), were sent out from Warsaw to various country localities (against 52 children in 1882, 84 in 1883, and 136 in 1884). The stay at the colonies lasted four weeks, the average cost of a child being about ten dollars.

The children selected for colonization were mostly suffering from scrofula, anæmic cardiac murmurs, bronchial catarrhs, etc. The gain in weight and muscular strength (as tested by a dynamometer), was "very satisfactory," the maximal increase being observed in a boy, aged 11, who had gained eight pounds, and whose muscular strength had risen from 45 to 80. Unfortunately, the author does not adduce the whole of his statistics.

EXERCISE AND NO EXERCISE, OR GLADSTONE vs. MANNING.

There recently passed through Philadelphia a man 96 years old, who had walked from North Carolina, and intended walking to Massachusetts. This hale, hearty and cheerful old gentleman walks twenty miles a day. Mr. Gladstone *chops down trees* to get an appetite for breakfast, and now at more than 80 years of age, is the most active man, physically and mentally, in the world. Mr. Secretary of the Treasury Manning was wont to say that he never walked farther than from his carriage at the door of the Treasury Building to the elevator, and when he ought to be in his prime, he is a physical wreck. These are not isolated cases, but as they deal with distinguished men, they best serve to point an obvious moral.

PAINS IN THE HEAD DURING THE GROWING PERIOD.

It is not uncommon to find children who are compelled to interrupt their attendance at school on account of persistent headache. It commonly occurs between the ages of twelve and eighteen years, is accompanied by dizziness and languor, and is excited by any intellectual effort, sometimes even by the reading of an entertaining book. Its location is mainly in the temples, though it may spread over the entire head. The sufferer is at times irritable, easily excited, or inclined to sadness or spells of weeping. Oftentimes a visit to an oculist will reveal some defect of the eyes, and properly adjusted glasses will yield immediate relief. In addition to this, the child should be absolutely relieved from all intellectual effort, and should be placed in good hygienic surroundings.

UNWHOLESOME CANNED PEAS.

The Health Board of Brooklyn has been looking into the healthfulness of French peas, and has condemned large quantities on account of injurious articles used in their preparation. The names of the brands which the Brooklyn authorities have decided to be unhealthy are the following: Henry Deler et Cie, Dannicolee et Gaudin, Bordeaux; J. Nouville, Bordeaux; Perry fils, A. Lazun, E. Estibal, Bordeaux; E. M. Daelzin, Bordeaux; D. M. Ausone, Bordeaux; L. Carpe et Cie, Lunéville; Soule et Prise, Bordeaux; F. Fitonaine, Bordeaux; John Moir & Son, London, Aberdeen, and Seville; Charles Julien, Paris; Barton fils, Fontaine Frères, Paris; G. Talbot, Bordeaux. These names are given, as it may be useful to know what particular brands are held to be unhealthful. Five hundred grocers in Brooklyn have been notified not to sell peas coming from these houses.

SANITATION IN JAPAN.

We may ignorantly suppose that the civilization of Japan does not come up to the Western standard. At any rate, the people believe in sanitation. The following is from the "*Sei-i-Kwai*" *Medical Journal,* published in Tokyo: "In connection with the efforts of the sanitary authorities to combat disease and death, during 1885, we have, in Japan, no popular tumults to record, no mobbing, no injury to health officers or physicians engaged in their work of mercy, no organized attempts to hamper and arrest the execution of the various measures enforced for the public benefit, even when most onerous or even apparently arbitrary and severe. On the contrary, we are glad to acknowledge the hearty and intelligent assistance received, not only from the officers of the different departments of the government, both local and general, but from private organizations and individuals as well, while the people at large have readily acquiesced in the work of sanitation, occasionally rendering substantial aid to the authorities."

TILDEN, HANCOCK, GRANT AND McCLELLAN.

The lives and deaths of these four men offer food for much thought from a hygienic standpoint. Tilden for years was an invalid, yet by strict observance of the laws of health, he attained a fairly old age of mental activity, and his death finally was directly attributable to an infringement of a law of hygiene about which we cautioned our readers in our August issue; he remained out of doors, unprotected, too late on a *cool August* evening. Hancock inherited a physique that, were heredity the sole factor in longevity, should have made him a centenarian. But we all know that the "superb soldier" was a generous, if not a reckless liver, and he died suddenly at the comparatively early age of 62. The rugged Grant should, by right of inheritance, have lived for twenty years longer, but the life he chose was not a life favorable to longevity. The same can be truthfully said of "Little Mac." Yet will any one say that Tilden did not enjoy life as much as these others? We certainly have, to a much greater extent than most of us realize, the length of our lives in our own hands.

THE DAIRIES OF ST. LOUIS.

The action of King Herod in ordering the "murder of the innocents," was merciful when compared with the action of the authorities of St. Louis. His edict resulted in death, but death without prolonged suffering, while the cultured city of the West tolerates a state of affairs that must inevitably not only kill many children, and adults too, but must maim, mentally and physically, those who do not succumb. From a report of the city's sanitary officer, we learn that there are now within the city three hundred and eighty-six dairies, in which are kept seven thousand nine hundred and nine cows. In forty-six of these dairies (not quite 12 per cent.) there were filthy stables; and in nineteen (not quite 5 per cent.) filthy lots were found; and one hundred and fifteen (30 per cent.) had no exercise lot or pasture at all. One hundred and eight dairies (28 per cent.) had no provision for drainage. In fifty (13 per cent.) the ventilation of the stables was bad.

In two hundred and twenty-six of these dairies swill is fed to the cows.

CATARACT IN GLASS-WORKERS.

In the course of two years, Meyhöfer observed four cases of cataract in glass workers under thirty years of age, healthy in all other respects. This led him to the examination of five hundred glass-workers, all of whom were engaged in glass-blowing or other work which kept them in the immediate neighborhood of the open furnaces. Fifty-nine presented cataract. The left eye was much the most frequently affected, this side of the face being the one generally more turned toward the fire.

The only general disease hitherto recognized as a cause of the early formation of cataract is diabetes. But this, according to the testimony of physicians practicing among glass-workers, is not specially prevalent among them, and in the eight cases whose urine Meyhöfer was able to examine, he found no sugar. The author is of opinion that the cause of the cataract is the intense radiant heat from the open furnaces, and the consequent profuse sweating to which the men are subjected. The left side being especially exposed to the direct heat, explains the greater prevalence of cataract in the left eye.

THE FATAL PRIVY-VAULT.

Forty-two deaths from Infantile Diarrhœa in New Haven in June. These deaths occurred in forty houses. Dr. Lindsley, the Secretary of the Connecticut State Board of Health, tells us that the sanitary inspection reports of 30 of these houses are now on record in his office, and by reference to them it appears that all have privy-vaults save two. Of these two, one had 34 persons resident in the house, and probably overcrowding had much to do with the fatal result, and the other had 12 persons, and the plumbing was reported to be "bad," and the kitchen "insanitary." In these 30 houses there were 36 untrapped sinks. About these 30 houses were 15 cesspools. The other houses were either connected as regards their kitchen with the sewers, or threw their slops on the ground. Many of these houses were supplied with water from wells in their yards, *in close proximity to the cesspools and privy-vaults.* Most of these places which have not yet been inspected, are in localities where exactly the same conditions are known to exist.

Comment is unnecessary; he who runs may read.

HOW SOON AFTER MEASLES MAY A CHILD ATTEND SCHOOL?

The Code of the "Medical Officers of Schools Association" of England says that, "A pupil may go home, or rejoin the school, after measles, in not less than three weeks from the date of the rash, if all desquamation and cough have ceased." And it is further pointed out that this rule, in common with the others given as applicable to the cases of the different infectious diseases under discussion, is a safe one to adopt, "provided patient and clothing are thoroughly disinfected."

The recommendations contained in the code were formulated only after long and anxious deliberation, extending over many months, and after consultation with numerous recognized authorities throughout the country. Their aim is to indicate so much as is sufficient, and not more than is necessary, in the way of safeguards against the admission and the spreading of infectious disease in schools. But they are, of course, subject to modification in accordance with the increase, and the increasing precision, of medical and hygienic knowledge.

MARCHING ON TO HEALTH.

On the 21st of June last there was opened, says the Boston *Medical and Surgical Journal*, on Glen Island, in Long Island Sound, near New Rochelle, a "military camp of instruction in marching," under the superintendence of the veteran pedestrian, Edward Payson Weston. The competitors, who comprise members of the various militia regiments, are each to walk twelve hours a day for six days, carrying forty and a half pounds in the way of knapsacks and accoutrements, and the camp was to be continued for nine weeks. On the opening day an address was delivered by Professor R. Ogden Doremus, in which he referred to Weston as the father of American pedestrianism, and stated that since 1867 he had walked 63,500 miles, and that Dr. B. W. Richardson, who examined him in London, pronounced him the healthiest man he had ever examined. Professor Doremus concluded his address by advising all who desired good health to make a point of sweating daily as a result of physical exercise; and he declared that he looked upon the camp as the first step towards future splendid results.

◆

BEST COWS TO SUPPLY MILK FOR INFANTS.

The millionaire father of an idolized baby will think that he has a great advantage over his fellow mortals, for he can buy the most expensive Alderneys, Jerseys or Guernseys to give milk for his baby. But he will be disabused of this idea, when he learns that in the *Archives of Pediatrics*, Dr. E. F. Brush claims that the best cow to supply milk for infant feeding is the common grade cow. In his experience the big red breed is the most quiet and gentle in disposition, a good feeder, and not excitable even in heat. She should be stall-fed at all seasons when supplying milk for an infant. Her fodder should be fresh hay. The first thing in the morning, after milking, give her a breakfast of cut hay wetted and mixed with one pint of corn meal, two quarts of bran, one pint of oil meal, one ounce of bone meal, one ounce of salt. She should then be curried and turned out for exercise into a yard where there is an abundance of clean water. At noon she should have half a bushel of cut roots, either carrots, mangel-wurzel, or ruta-bagas. After milking in the evening, give her the same allowance that was given at breakfast.

HYGIENE OF VISION.

It is generally believed that the myopia which is so prevalent in Germany is due to these principal causes: Excessive work, bad type, imperfect illumination, insufficient food and exercise, and lastly, hereditary predisposition. In a paper published lately M. Galezowski insists that every child on entering school life should have the vision carefully tested by an ophthalmic surgeon, and that from time to time the medical attendant of the school should compare the condition of the vision of the student with this primary test, and in the event of deterioration the hours of work should be diminished. Galezowski finds that the access of an acute disease has little influence on a robust and healthy child, but is very apt to lead to myopia in those that are feeble. He recommends strongly the constant use of appropriate concave glasses in the form of spectacles for myopia, in opposition to the use of folders or *pince-nez*. But it is in regard to light that he expresses himself most strongly. He holds that good, and even brilliant, illumination by means of lamps produces no ill effects, and points to the good vision possessed by printers, who work much by lamp-light.

◆

THE LIGHTING OF SCHOOLS.

To the late International Hygienic Congress, Dr. Hermann Cohn (Breslau) gave a description of new methods employed for estimating the degree of light available in schools. It was known, that to look closely for any length of time at an object exposed in an insufficient light would produce short-sightedness; but it had always been difficult to establish the degree of light in each particular case. For this purpose, and availing himself of the contrivance of several inventors, Dr. Cohn employed a photometer, of which he described the construction, and showed a specimen. By this instrument, the degree of light shining on a piece of paper placed on a table could be told accurately. First, the intensity of light of the sky should be estimated so as to reduce the comparisons to the light of 1000 candles, though, according to the weather, the sky often possessed more and sometimes less than this degree of luminosity. In schools, he found the light to vary from 1 to 1000 candles, and a very precise comparison could now be established, which with the aid of the photometer would enable one to decide upon a precise standard of light that should be obtained; and without which the opening of a school should not be sanctioned.

HEALTH OF CHILDREN IN SCHOOLS.

Dr. A. Hertel (Copenhagen) read a paper on the state of health of the children in Danish and Swedish schools, before the last International Medical Congress, detailing the results of an inquiry made by a Commission on 16,789 boys and 11,336 girls. The following statement gives the proportional ratio of illness in the different classes of schools:

Boys—Higher Schools: Lyceums and colleges, 32 per cent.; schools without Latin instruction, 28 per cent.; intermediary schools, 26 per cent.

Public Primary Schools in Copenhagen and in Towns: Free schools, 35 per cent.; non-free schools, 28 per cent.

In the Country: Sons of farmers, 27 per cent.; sons of laborers, 29 per cent.

Girls—Higher Schools, 39 per cent.

Public Primary Schools in Copenhagen: Free, 47 per cent.; not free, 40 per cent.

In the Country: Daughters of farmers, 39 per cent.; daughters of laborers, 45 per cent.

The most frequent diseases were scrofula, anæmia, and, after that, affections of the head. Myopia existed in all the schools to a certain extent; but, in some of the colleges and lyceums, 45 per cent. of the older pupils were myopic.

LARGE DEATH-RATE AMONG NEGROES.

The last mortuary report of the Health Officer of Savannah shows a death rate per 1,000 of the population of 12.19 for the whites, and 122.94 for the colored people. This is bad enough, but the mortality of the colored children is even worse, being at the rate of 601.03 per 1,000. At this rate of mortality the average duration of life among the negroes of Savannah is but little over eight years, and this when the city is free from any epidemic disease. It is caused by imprudence, by lack of the proper care and attention. The negro children are neglected, receive no nursing, fail to get the medical attendance, the medicine or food they require. They live, even when in good health, in the most unsanitary condition, and defy all the laws of hygiene. Every Southern city is suffering from this same trouble. Its death-list is swollen by the thousands of ignorant negroes who fall victims to their carelessness and imprudence. Diseases are nursed in its negro quarters; small-pox, measles, and scarlet fever linger there, when they have been driven out from all the white districts. The evil is growing worse from day to day. There has been no sanitary improvement among the Southern negroes, no decrease in mortality. Each year shows a worse condition of affairs.

HOW TO COOL A CELLAR.

A great mistake is sometimes made in ventilating cellars and milk houses. The object of ventilation is to keep the cellars cool and dry, but this object often fails of being accomplished by a common mistake, and instead the cellar is made both warm and damp. A cool place should never be ventilated unless the air admitted is cooler than the air within, or is at least as cool as that, or a very little warmer. The warmer the air the more moisture it holds in suspension. Necessarily, the cooler the air the more this moisture is condensed and precipitated. When a cool cellar is aired on a warm day, the entering air, being in motion, appears cool, but, as it fills the cellar, the cooler air with which it becomes mixed chills it, the moisture is condensed, and dew is deposited on the cold walls, and may often be seen running down them in streams. Then the cellar is damp, and soon becomes mouldy. To avoid this the windows should only be opened at night, and late—the last thing before retiring. There is no need to fear that the night air is unhealthful—it is as pure as the air of midday, and really drier. The cool air enters the apartment during the night, and circulates through it. The windows should be closed before sunrise in the morning, and kept closed and shaded through the day. If the air of the cellar is damp, it may be thoroughly dried by placing in it a peck of fresh lime in an open box. A peck of lime will absorb about seven pounds or more than three quarts of water, and in this way a cellar or milk room may soon be dried, even in the hottest weather.

MILITARY DRILL IN SCHOOLS.

Through a mistaken kindness in some, and on account of a culpable weakness and negligence in others, home discipline among children is a very rare sight in this country. That it is wrong not to discipline our children, we all admit, but we fail in many instances to carry this admission to its logical remedy. That the best men are those who are quickly ready either to obey or command, as time, place and circumstances may indicate, we all know. The traits that have been developed in army and navy officers by the discipline to which they have been subjected at West Point and Annapolis, and to which they are held constantly responsible, does much more to secure for them their popularity and the respect of the public (especially of the ladies), than their showy uniforms, to which it is usually attributed. In them we generally recognize the presence of the better and most manly traits of manhood, which no doubt is due to the developing influence of discipline. Hence it would be well, especially for parents who feel that they are lacking in the power to enforce discipline at home, to send their boys to schools in which military drilling constitutes a part of the curriculum. To say nothing of the physical development which such wholesome exercise insures (a most important point), the discipline is most potent in developing the best traits in boys, in causing them to learn to obey, and when the proper time comes to command. Mothers and fathers, look within yourselves, and if you recognize a want of disciplinary power, remember that you have that which will aid you to make *good men* of your boys.

A HYGIENIC SCHOOL DESK.

Dr. Priestley Smith has devised a hygienic school desk which he describes in the *Ophthalmic Review* for June, 1886. The requisites for such a desk he formulates as follows:

1. The seat must be of such height as will allow the scholar's feet to rest flat upon the floor or footboard, and broad enough to support the greater part of the thigh.

2. The seat must have a back placed at such height as to fit the hollow of the back

below the shoulder blades, and support the body in a vertical position.

3. The near edge of the desk must be just so high above the seat that when the scholar sits square and upright with elbows to the sides, the hand and forearm may rest upon the desk without pushing up the shoulder.

4. As used in writing, the desk must have a slope of 10° to 15° (about 1 in 5); as used in reading, it must support the book at an angle of about 45°, and at a distance of at least twelve inches from the eyes—sixteen inches is better (30–40 centimetres).

5. As used in writing, the edge of the desk must overhang the edge of the seat by an inch or two, in order that the scholar shall not need to stoop forward, and that the support to the back may be maintained.

6. Either the desk or the seat, or some part thereof, must be movable at pleasure, so that although the desk usually overhangs the seat the scholar may be able at any time to stand upright in his place.

7. The desks and seats must be of various sizes, in order that the foregoing conditions may hold good for scholars of various ages.

HEADACHE AND NEURALGIA IN SCHOOL TEACHERS.

School teachers suffer more, probably, from these forms of painful disorder than any other class of persons. The sedentary lives they lead, in connection with the fact that very few school buildings are properly ventilated, must be held responsible for this fact. When these buildings are properly arranged and the teachers themselves come to realize the vital necessity of exercise, things will be different. But, in the meantime, must they continue to suffer? By no means. Every physician knows that counter-irritation will relieve a headache or a neuralgia. How it does so, it is not necessary here to discuss, because we know it to be a *fact* that it does. Plasters, liniments and blisters, all produce counter-irritation, but they are disfiguring, hence their use is interdicted to the teacher, during the time that she is most in need of them. Realizing this fact, the firm of John Wyeth & Bro., of Philadelphia, have prepared what they call "RUBEFACIENT CONES," for the cure and speedy relief of headache, neuralgia, rheumatism, lumbago, sciatica, colic, sick stomach, dysmenorrhœa, kidney affections, weak and tender spine, inflamed joints, and all affections of the nerves and muscles where mustard, capsine, porous and other plasters, liniments or blisters are indicated; embracing perfectly the remedial effects and virtues of all the well-known counter-irritants, without their inconvenience, danger of blistering, or other after-injurious effects upon the skin. It needs no preparation, is always ready for use, can be applied to any portion of the body, and does not discolor or soil the garments. In the sudden emergencies requiring remedies of this character, it will supply an aid not heretofore existing.

We have used these "*Cones*," and can therefore recommend them from actual personal experience. We would strongly urge every school teacher who suffers as suggested, to buy one of them (they cost but little) and give it a trial.

The Cones can be applied under any circumstances, on railway journeys, at sea, at home, or abroad. It is only necessary to rub the Cone on or over the part, the seat of the pain, a few times, until the gentle tingling caused by it is felt. The amount of irritation can be controlled at will, according to the degree or mode of application, and can be removed entirely by simply wiping off the surface of the skin with a damp cloth or towel.

The Annals of Hygiene.

VOL. I. PHILADELPHIA, OCTOBER 1, 1886. No. 10.

Communications.

AN EPIDEMIC OF DIPHTHERIA TRACED TO ITS SOURCE.*

BY BENJAMIN LEE, A.M., M.D., PH.D., OF PHILADELPHIA.

Secretary of the State Board of Health of Pennsylvania.

Every opportunity for tracing an outbreak of preventable disease to its presumably preventable cause is precious to the sanitarian. It speaks more loudly than mere words ever can to the public ear, which he desires to impress.

Such an opportunity, most striking in its character, has occurred in this state during the past year with reference to that wide spread and fatal Zymotic, Typhoid Fever. I wish in this brief paper to parallel it with another which I had occasion to study some years since, and which is not less instructive because less recent, in regard to that equally prevalent and even more destructive contagion, Diphtheria. Let me at the outset call attention to the difference in the mode of introduction of the poisons or germs of these two diseases into the human system. Of course no rule is without its exceptions, but it may be broadly stated that the Typhoid germ is swallowed either in food or drink, oftenest in water, and flourishes and commits its most noticeable ravages in the digestive tract or alimentary canal; while the Diphtheritic germ is inhaled, and flourishes and commits its ravages in the respiratory tract, the nostrils, fauces, larynx, windpipe and bronchial tubes.

I had the honor, in the spring of 1878, to deliver the "Address in Hygiene," before the Medical Society of this State, in the City of Pittsburgh. That city had just been passing through a most mournful experience in an epidemic of the latter disease, and I felt that the occasion ought to be improved.

A better text from which to preach a sanitary sermon no hygienist could have desired. Following the hint of Shakspeare's sagacious observer who found "tongues in trees, sermons in stones, books in running brooks, and good in everything," it was an easy matter to read a homily from the four hundred little white headstones which marked four hundred new-made graves on the beautiful hillside above the bank of the rushing river, just outside the city; it required little imagination to hear the leaves whispering together in the night wind a sad requiem over those four hundred little mounds, green with the grass of their first summer; and no imagination whatever to perceive that beneath our feet, as we walked the streets of that busy town, were running, through tortuous subterranean courses, noxious streams, whose pestilential exhalations would prove, as they had proved, messages of death to many a household. The "good" which we were to look for here was to be found, in a fresh opportunity to educate the public mind and quicken the official conscience in regard to the sin of filthiness.

---

* Read before the State Sanitary Convention held in Philadelphia. From advance sheets of Annual Report.

The mind that can carefully peruse this plain recital, and consider it in connection with the excellent map which Dr. Snively, the efficient registrar of vital statistics of that city, has been good enough to furnish me to illustrate it, and fail to be convinced that sewer air will cause Diphtheria, could not comprehend the simplest proposition in mathematics.

The circumstances which give this epidemic its special importance as an educator and an illustration are its intensity, the rapidity of its rise, its restricted localization, and the proved existence of insanitary local conditions together with unusual meteorological exciting causes.

Sanitarians are often perplexed in their efforts to follow up a chain of evidence, by finding this or that link missing, which, although not needed to satisfy themselves, is essential to convince an unbeliever. In this case none are wanting.

The intensity of the outbreak may be appreciated when I say that the City of Philadelphia, with a population six times as large, has never had so many deaths from this disease within a corresponding space of time.

As to the rapidity of its rise, its mortality ran up from zero in June, to ninety-two in August, and two hundred and sixty-seven in October.

For such a startling increase in the prevalence of a single disease some remarkable cause must have existed. The Board of Health set itself to work to discover this cause, and if possible to counteract it. The thoroughness of their investigation might well be imitated in some larger centres of population, in which equally combustible elements are only awaiting the spark which shall kindle them into a widespread conflagration. "Except ye reform ye shall all likewise perish."

As to the local conditions, distribution of the disease, and exciting causes, I now gladly allow Dr. Snively to speak.

"During the seven months immediately preceding the outbreak," he says, "there were certified from widely-separated and remote parts of the city, only 35 deaths from Diphtheria, distributed according to season as follows:

"January, 9; February, 3; March, 4; April, 3; May, 5; June, 3, and July 8. These were distributed topographically as follows: East-end wards, 8; Old City wards, 12; South-side wards, 15. Of the 15 deaths which occurred upon the South side, but four were located in what we may appropriately designate (in the light of subsequent events) as the *infected district*, viz., These portions of the Twenty-sixth, Twenty-seventh, Twenty-eighth, and Twenty-ninth wards, located contiguous to, or drained by, the Washington Street and the Twentieth Street sewers. The record for the month of August shows 61 deaths, of which number 43 occurred in the infected district, while of the 465 deaths which occurred during the eight months, from August 1, 1877, to April 1, 1878, 174 were located within the limits of the infected district.

"The territory to which I have applied this title is ninety acres in extent and triangular in shape, being bounded by Carson Street, Twenty-first Street, and the base of the hill which rises abruptly to an average height of 450 feet above low water mark in the river. Carson Street, which may be considered to represent the average level of the district, is 60 feet above low water mark. Owing to the fact that the streets running parallel with the river, are, as a rule, exceedingly level, the sewers which traverse them are of very low grade.

"In this district, during the month of August, 1877, diphtheria suddenly began to prevail in a manner to attract attention, and in a very short time threatened to assume the proportions of an epidemic. As previously stated, the deaths in this district during the first month of the outbreak numbered 43. Estimating one death to every five cases, there must have occurred to produce such a result over 200 cases.

"The evidence is strongly presumptive, that in the sewers, particularly the one traversing Washington Street, in which a solid mass of filth from one to three feet in depth had accumulated, the specific poison, or whatever you choose to call it, which produces the disease known as diphtheria, had found a lodgment and a favorable soil for its development and multiplication. To the local sewers, undoubtedly, was due the fact that the disease selected this district as its habitat, and from this locality as a centre, radiated, presumably by virtue of its contagious properties, in every direction.

"The first cases occurred in immediate proximity to the Washington Street sewer. This sewer including its branches is a little over a mile and a half in length. That portion of it running from Tenth to Seventeenth Street, was built in 1851. In 1866 it was extended to the river. Beginning at the foot of Eighth Street, its main stem traverses that street to its intersection with Carson, from this point it passes diagonally through private property to the intersection of Ninth and Washington, and from this point traverses Washington to Seventeenth Street. It is constructed of brick with five feet internal diameter from its mouth to Twelfth Street, four feet in diameter from Twelfth to Fourteenth Street, and two feet ten inches in diameter from Fourteenth to its terminus at Seventeenth Street. The average grade of the main line of this sewer is said to be one foot per hundred. Judged by the grade of Washington Street from Ninth to Seventeenth, it must be considerably less in this part of its course. It has twenty-nine street drops, *none of which are trapped*, the emanations therefrom being a source of great complaint. The refuse from a slaughter-house drains into the drop at the corner of Washington and Eleventh Streets. At the time of the outbreak of diphtheria this sewer had not been cleaned since its construction in 1851—a period of twenty-six years,—and, as previously stated, was "choked" throughout the greater part of its course with a mass of filth from one to three feet in depth."

So much for the Washington Street sewer and its high capabilities as a contagion breeder. Let us now follow Dr. Snively in his examination of the other "running brook."

"Following closely upon the development of the disease along the Washington Street sewer and its branches, a similar development occurred among the more elevated branches of the Twentieth Street sewer; so that the outbreak may be said to have been simultaneous throughout the infected district.

"The Twentieth Street sewer, including its branches, is about two and a half miles in length, and was built in 1867. Its main stem is constructed of brick, with six feet internal diameter. Its main branches are also constructed of brick, having diameter five, four and three feet. A pipe sewer, four feet in diameter—being a continuation of the Eighteenth Street branch—extends a distance of 275 feet up the steep hillside to Pius Steet. This sewer would appear to have acted as a chimney or ventilator for those on the flat ground below, as the deaths were most numerous in the immediate vicinity of its terminus."

Thus the poor wretches who supposed that by taking up their abodes upon high ground they were going to insure themselves a healthy location, in consequence of their own ignorance of the simplest laws of physics, and the worse than ignorance of their constituted authorities, were only choosing a spot where the deadly infection might most surely reach them. "The remaining branches are constructed of 15-inch pipe. This sewer has a good grade with the exception of those branches which traverse the streets running parallel with the river. The street drops connected with it are provided with traps, with the exception of seven on Twenty-first Street, which are a source of much complaint, because of offensive emanations. About a dozen slaughter-houses are located near its terminus on Twenty-first Street, the refuse from which is conveyed by it to the river."

As showing how carelessness and ignorance may convert that which should be an aid to sanitation into a positive instrument of atmospheric poisoning, it is alleged that the drops were also constantly becoming offensive, owing to the fact that people ignorantly threw stale eggs, vegetables, and all sorts of material into the drop, the most convenient place of deposit, under the delusion that they would, in some way or other, get into the sewer and be carried away. It will be readily seen that, from this cause, the drop and not the sewer may often be the true source of offensive emanations.

"Both the Washington and Twentieth Street sewers are without systematic provision for ventilation. Man holes are provided at intervals, but are covered with tight fitting cast-iron lids."

The existence of fearfully insanitary conditions in the City of Pittsburgh previous to the outbreak of diphtheria is thus clearly shown. But these conditions were evidently no new thing. They had existed for years back, only growing each year in intensity, and lethal power. To what are we to attribute their sudden passage from the passive to the active condition? What was the spark which exploded the mine? The explanation of Dr. Snively, given below, is undoubtedly the correct one. It has a special significance for those of us, who live in Philadelphia. There are large sections of this city in which, during summer storms of the slightest severity, the sewers not only refuse to perform their ordinary duty of carrying off the rain-fall, but vomit forth their stinking contents until the streets are, for squares, flooded knee deep. What must the effect of this pressure be upon the traps of houses on a higher level. I venture to say that there are few houses in the city in which, with a strong South-east wind and a high tide, one or more traps are not forced in the manner indicated.

"In cities which drain into tidewater," says Mr. Edward S. Philbrick, in the *Plumber*, "The outfalls of the sewers are generally covered at high water, either every day or at spring tides. If the ends have no gates, the tide enters and fills the sewer as far back as its level allows. If gates exist they shut with the flow of the tide, and sewage accumulates behind them with a result often almost exactly similar to what would occur without gates. In either case a large volume of air is driven up from the outfall towards the ramification of the system by every flood tide which covers the mouth of the sewer, only to be drawn back again when the ebb tide allows the sewer to empty itself. If this air does not communicate freely with the outer air, a pressure of several feet of water must necessarily result, alternating the vacuum to the same amount every twelve hours.

"Large variations of pressure inside the sewers may also arise from the variable quantity of sewage flowing in them. Nearly all the sewage is discharged from the houses during the hours of daylight, the flow during the night being very small in comparison. Hence a periodic increase and decrease of the amount of air space within the sewers, dependent upon and varying inversely with the amount of sewage flowing. This is particularly noticeable among manufacturing establishments, where much water is used during working hours, and which do not run during the night. Of course, the air must leave the space to make room for the sewage in the morning, and, as the flow of sewage diminishes in the evening, the outer air crowds in to fill the vacuum by whatever openings or ducts are most available."

Dr. Snively remarks—

"Sewers will always be dangerous enemies in our midst, until the sanitary engineers show us how to ventilate them, until this be successfully accomplished, the residents possessing sewer connections, will be compelled, in order to protect their health and lives, to resort to traps. These, in whatever manner constructed, may, under certain circumstances, be unreliable. During a heavy rain-fall, the sewers are filled with water. The gas must therefore be displaced, and as the man-hole covers are tight, and the street-drops, already trapped, are rendered still more secure at this time, by the floods of water pouring through them, it must of necessity blow out the weaker traps in the house connections and enter the dwellings.

"It is exceedingly probable, that to a series of events of this character, was due the outbreak of diphtheria among the South-side sewers, which we are considering.

"The records of the signal office for the year 1877, show that prior to July 2, there occurred no heavy rain-fall, or sudden and violent rain storm, of short duration but sufficient to fill the sewers. During the night of July 2, rain fell to the amount of 1½ inches in seven and a half hours. This was equal to 20-100 inches per hour, and must have poured an immense volume of water into the sewers. During the afternoon of July 27, there occurred a rain-fall of 50-100 inches in a storm of one hour's duration—sufficient to test their utmost capacity." This would cause violent surface flooding of short duration. Its effect upon the sewers may be inferred from the fact that the velocity, force, and volume of water was sufficiently great to sweep a man, who was engaged in cleaning the Twentieth Street sewer, a distance of 880 feet into the river. "This disturbance of the sewers preceded by but a few days the outbreak of diphtheria. On August 12, rain fell to the amount of 40-100 inches in a storm of thirty-three minutes' duration. Again, on August 15, rain fell to the amount of 60-100 in sixty-five minutes. We find, therefore, that there occurred during the year 1877, *one* heavy rain-fall, and *three* sudden and violent rain storms of short duration, but amply sufficient on each occasion, to cause an immense volume of water to be discharged from the hill-side into the sewers; the effect of which, as previously described, would be to force the sewer gas through the connections and into the dwellings. The date of occurrence of these four disturbing events, *coincides* to say the least, in a very suspicious manner, with the outbreak of diphtheria in this locality."

It is claimed by many sanitarians that the plan adopted in Pittsburgh, and in most of our cities of making the sewer, also the carrier of storm water is a mistaken one. One ground for this opinion is that just expressed so clearly and forcibly in the last quotation. The other, or one other, is that the sewer must be made very much larger than its legitimate object demands, and hence be comparatively empty, except during storms, thus affording an opportunity for the deposit of solid material in its course from want of force of flow to flush it. The above history seems to be strongly confirmatory of this view.

Such being the facts with regard to the danger of imperfectly protected sewer connections, is it not almost inconceivable that individuals could be found sufficiently reckless to omit all precautions whatever in forming such connections? And yet we are told that the testimony of the Street Commissioners was, that but a small proportion of the property owners possessing sewer connections had been at the trouble or expense of providing them with proper traps and ventilators. Upon this subject, also, Dr. Thomas, in his report to the Board of Health, says: "The first, and a majority of the cases of diphtheria seen by me, were in close proximity to the Washington Street sewer and its connections. This sewer is so badly constructed as to be a propagator of disease. A great error committed by landlords along Washington Street and the side streets, is the connecting of cellars, water-closets, and cesspools with the sewers without the addition of traps or ventilators. So long as this condition of affairs exists, we must expect, and will have, 'germ' diseases."

Not without its mournful basis of truth was the old superstition which tenanted the caves of the earth with foul dragons ever on the watch to seize and wrap in their loathsome folds the unwary mortal who ventured within reach of their pestilential breath, even stealing, under the cover of night, into human habitations, and stupefying sleeping victims with their noxious exhalations, until they fell easy victims to their rapacity. Under every home in every city lies such a cavern, filled with like noisome beasts. "Eternal vigilance is the price of safety" from their insidious approaches.

I would that I could burn the red dots upon this map, every one of which is a house of mourning, as with an indelible brand into the brain of every one who looks upon it, so that ever afterward, when the word diphtheria met his gaze or fell upon his ear, the course of these serpentine sewers thickly clustered with their fruitage of death, might start into relief before his mind's eye, and the thought of sewer-poison instantly be present with him.

CASES OF MILK-POISONING, WITH REMARKS ON TYROTOXICON.*

BY WILLIAM K. NEWTON, M.D.,

Sanitary Inspector and Analyst to the State Board of Health, of New Jersey

AND

SHIPPEN WALLACE,

Analyst to the State Board of Health of New Jersey.

Inquiries concerning the cases of illness at Long Branch, due to noxious milk, have been so very numerous and solicitous, and the interest manifested in the subject has been so great, that we feel warranted in publishing the following account of the trouble.

It is seldom that the investigator has the opportunity to trace to its source the milk or other food that has caused sickness, but we have, in these cases, been very fortunate in being able to follow every step in the management of the milk, from the farm to the consumer. In similar cases of poisoning by cheese and ice cream which have been investigated by Vaughan and others, although chemical analysis has revealed the probable cause and the toxic substance has been isolated, some link in the chain of evidence has been wanting. But the history we are now to relate seems unique, because every portion of the evidence is before us and we are able to demonstrate what the injurious material really is, besides offering other proof as to the possible cause of the formation of this substance.

On August 7th twenty-four persons at one of the hotels at Long Branch were taken ill soon after supper. At another hotel, on the same evening, nineteen persons were seized with the same form of sickness. From one to four hours elapsed between the meal and the first symptoms. The symptoms noticed were those of gastro-intestinal irritation, similar to poisoning by any irritating material—that is, nausea, vomiting, cramps, and collapse; a few had diarrhœa. Dryness of the throat and a burning sensation in the œsophagus were prominent symptoms.

While the cause of the sickness was being sought for, and one week after the first series of cases, thirty persons at another hotel were taken ill with precisely the same symptoms as noticed in the first outbreak.

Drs. S. Hunt and Williams, of Long Branch, attended all the patients on both occasions. Dr. Hunt kindly furnishes the following account of the cases:

"The symptoms were very similar to those of any case of gastro-intestinal irritation."

Inquiry revealed the fact that all who had been taken ill had used milk in greater or less quantities, and that persons who had not partaken of milk escaped entirely. Suffice it to say that we were able to eliminate all other articles of food and to decide that the milk was the sole cause of the outbreak.

Having been able to determine this, the next step was to discover why that article should, in these cases, cause so serious a form of sickness.

The probable causes which we were to investigate were outlined as follows: (1) Some chemical substance such as borax, boric acid, salicylic acid, sodium bicarbonate, sodium sulphate, added to preserve the milk or to correct acidity. (2) The use of polluted water as an adulterant. (3) Some poisonous material accidentally present in the milk. (4) The use of milk from diseased cattle. (5) Improper feeding of the cattle. (6) The improper care of the milk. (7) The development in the milk of some ferment of ptomaine, such as tyrotoxicon.

---

* Abstracted from *Medical News.*

At the time of the first outbreak we were unable, unfortunately, to obtain any of the noxious milk, as that unconsumed had been destroyed, but at the second outbreak a liberal quantity was procured.

It was soon ascertained that one dealer had supplied all the milk used at the three hotels where the cases of sickness had occurred; his name and address having been obtained, the next step in the investigation was to inspect all the farms, and the cattle thereon, from which the milk was taken. We also learned that two deliveries at the hotels were made daily, one in the morning and one in the evening; that the milk supplied at night was the sole cause of sickness, and that the milk from but one of the farms was at fault. The cows on this farm were found to be in good health, and, besides being at pasture, were well fed with bran, middlings, and corn meal.

So far, we had been able to eliminate as causes diseased cattle and improper feeding, and we were then compelled to consider the other possible sources of the toxic material.

While the inspection of the farms was being made, the analysis of the milk was in progress. The results of this showed that no chemical substance had been added to the milk, that it was of average composition, that no polluted water had been used as a diluent, and that no poisonous metals were present. This result left us nothing to consider but two probable causes; improper care of the milk, and the presence of ferment.

As to the former we soon learned much. The cows were milked at the unusual and abnormal hours of midnight and noon, and the noon's milking —that which alone was followed by illness—was placed, while hot, in the cans, and then, without any attempt at cooling, carted eight miles during the warmest part of the day in a very hot month.

This practice seemed to us sufficient to make the milk unpalatable, if not injurious, for it is well known that when fresh milk is closed up in a tight vessel and has been deposited in a warm place, a very disagreeable odor and bad taste are developed. Old dairyman speak of the "animal heat" as an entity, the removal of which is necessary in order that the milk shall keep well and have a pleasant taste. While we do not give this thing a name, we are fully convinced that milk should be thoroughly "cured" by proper chilling and aëration, before it is transported any distance or sold for consumption in towns or cities.

This opinion is based on a study of methods prevalent among experienced dairymen, who ship large quantities of milk to our great cities. The usual practice is to allow the milk to stand in open vessels, surrounded by ice or cold water, for from eight to twelve hours before transportation, and when placed on the cars it has a temperature of from 50° to 60°, and is delivered to the consumers in a perfectly sweet condition. The City of New York receives about 200,000 gallons each day from the surrounding country, and much of it brought in by the railroads has been on the cars for a time varying from six to eight hours, yet we seldom hear of any of this milk undergoing the peculiar form of fermentation set up in the Long Branch milk. We may account for this by assuming that the proper care of the milk after it was taken from the cow, and the low temperature at which it was kept have prevented the formation of any ferment. This opinion seems to be endorsed by all dairymen and managers of large creameries with whom we have consulted. They all agree in stating that milk maintained at a low temperature can be kept sweet and in good condition for many days.

We have dwelt on this branch of our topic somewhat extensively, because we are fully persuaded that the improper care of the milk had much to do with the illness it produced.

The results of our inquiry having revealed so much, we next attempted to isolate some substance from the poisonous milk, in order that the proof might be more evident. A quantity of the milk that had caused sickess in the second outbreak was allowed to coagulate, was then thrown on a coarse filter, and the filtrate collected. This latter was highly acid, and was made slightly alkaline by the addition of potassium hydrate. This alkaline filtrate was now agitated with an equal volume of pure, dry ether, and allowed to stand for several hours, when the ethereal layer was drawn off by means of a pipette. Fresh ether was added to the residuum, then agitated, and, when separated, was drawn off and added to the first ethereal extract. This was now allowed to evaporate spontaneously, and the residue, which seemed to contain a small amount of fat, was treated with distilled water and filtered, the filtrate treated with ether, the ethereal solution drawn off and allowed to evaporate, when we obtained a mass of needle-shaped crystals. This crystalline substance gave a blue color with potassium ferricyanide and ferric chloride, and reduced iodic acid. The crystals, when placed on the tongue, gave a burning sensation. A portion of the crystals was mixed with milk and fed to a cat, when, in the course of half an hour, the animal was seized with retching and vomiting, and was soon in a condition of collapse, from which it recovered in a few hours.

From these experiments with this material, we were able to identify it as *tyrotoxicon*, a substance discovered and described by Prof. Victor C. Vaughan, of the University of Michigan. Although much has been published during the past two months concerning this substance, it will not be unprofitable, in this connection, to review the statements of the chemist who first described it.

In the year 1883 about three hundred persons were taken violently ill after eating cheese, and Prof. Vaughan was requested by the Michigan State Board of Health to ascertain the cause. While engaged with this work, he discovered the substance which answered to the tests mentioned above, and which he called "tyrotoxicon" (cheese poison).*

During June, of this year, Prof. Vaughan was able to obtain this substance from ice-cream that had sickened some eighteen persons.

We are now able, for the first time, to demonstrate this new substance in poisonous milk, thus endorsing the views of Vaughan, who stated in his report that, doubtless, it would be discovered in cases in which milk had caused sickness.

As to the chemical character of tyrotoxicon, we have little to say, for a sufficient amount for an ultimate analysis was not obtained by us. Vaughan says: "The circumstances under which tyrotoxicon develops require further study. As has been shown, it may develop in normal milk, kept in a clean bottle for three months; but it is evident that in some instances it appears much earlier." (In our case it appeared in five hours.) "The production of this ptomaine is, in all probability, due either directly or indirectly to the growth of some micro-organism."

---

* Ein Ptomain ans giftegem Käse. Zeitschrift für Physiologische Chemie, Band x. Heft 2, 1886.

From a close analysis of the facts in the cases recorded in this article, we are of the opinion that the substance is allied, chemically, to butyric acid; that it is formed in the milk by fermentation; and that its fermentation may be prevented by keeping the milk at a low temperature; or by properly cooling the milk soon after it is drawn from the cow. It seems, also, important that the so-called "animal heat" be allowed to escape. Boiling may dissipate the poison from milk that contains it: this opinion is based on the fact that tyrotoxicon is changed and driven off at a temperature of 180° F.

Conclusions.—We are justified in assuming, after weighing well all the facts ascertained in the investigation, that the sickness at Long Branch was caused by poisonous milk, and that the toxic material was tyrotoxicon.

The production of this substance was no doubt due to the improper management of the milk—that is, too long a a time was allowed to elapse between the milking and the cooling of the milk; the latter not being attended to until the milk was delivered to the hotel; whereas, if the milk had been cooled immediately after it was drawn from the cows, fermentation would not have ensued, and the resulting material, tyrotoxicon, would not have been produced.

OVERWORK AND SANITATION IN THE PUBLIC SCHOOLS OF PHILADELPHIA, WITH REMARKS ON THE INFLUENCE OF OVERWORK IN THE PRODUCTION OF NERVOUS DISEASES AND INSANITY.*

BY CHARLES K. MILLS, M.D.,

President of the American Neurological Association, etc.

[Continued from September Issue.]

I do not believe that you can have a school system without examinations. I do not believe that you can promote children from one grade to another without some standard of qualification. The standard should be so made, however, that the promoting could be done by the most natural and reasonable process. The question of "quota" methods and "competitive examinations" here comes in for decision. I find very broad difference of opinion among the members of the school system, teachers, controllers, superintendents, etc., on this point. One holds one view, a second has entirely different opinion, while a third has a somewhat diverse view. I can simply say that for the health and general welfare of the pupils, a modified quota method, under a perfected system, is what we need in this city. An absolute quota method does not work well. What is the result in the Boys' High School? Here are some of the statistics of one of the classes—the present Class A—which I have obtained through the courtesy of Prof. Riché. They show the percentage of pupils which have left in the different classes. The whole number admitted was 133. Left in H, 13; in G, 26; in F, 33; in E, 22; in D, 5; in C, 4; in B, 3. This leaves 27 pupils out of the 133 who started in nearly four years ago, 106 having dropped by the wayside. Doubtless some of these pupils have left on account of financial, social or domestic reasons. Discounting these, I think a fair per cent of them left because they were unprepared to grapple with the subjects presented to them. This is not necessarily the fault of the schools below. It is the fault of the system. As I have said, I believe in some form of the quota method, when the system is perfected so that the normal and high schools and grammar schools will fit into each other properly. The pupils come to the high school and are admitted on a certain average, say 65. That does not express it all. A boy gains an average of 65, but he may have a cipher on some important branch, such as arithmetic. How is he thereafter to grapple with algebra, geometry, trigonometry, differential calculus, and mathematical astronomy? The result is not so much actual overwork and break-down as it is depletion of the school, the pupils leaving to escape the strain. If the system was perfectly graded so that the time in each grade of the school was sufficient, and the pupils were brought up to certain standards carefully and naturally, examination with a minimum average required in every branch would be desirable.

---

* A lecture delivered before the Teachers' Institute of Philadelphia, at the Girls' Normal School, December 11, 1885, and remarks made at the State Sanitary Convention held in Philadelphia, May 12, 13, and 14, 1886.

One practical objection to the competitive examination system expressed to me by a number of principals of boys' grammar schools springs from the advantages which some schools have over others in numbers, surroundings, and home influence, so that admissions would be almost confined to them, the weaker sections being excluded, in large measure, from representation in higher schools.

What are some of the remedies for the evils of overwork which we have thus been indicating? In the first place, so far as the rising generation is concerned, it is more important than anything else that better methods of education—more thoroughly graded and systematized methods—should take the place of the immature, imperfect and unnatural processes now generally in use. In a strict sense, it is often not over-work, that is, an over amount of work, that is at fault, but rather badly arranged and regulated methods of work. The great remedy is to improve the school system all along the line.

Education is not arranged as it should be to develop the brain by a natural process from within outward, from centre to periphery. Any system of education is wrong which attempts to overturn or change the natural order of development.

"In a wide sense," says Crichton-Browne,* "education and practical medicine have the same aim. The true conception of health is that it consists in the harmonious performance of all the functions of the being. From the lowest plant to the highest animal we unhesitatingly assume the health of a being as the most perfect manifestation of its life, and to secure this most perfect manifestation of vitality is alike the object of the school-master and the physician. They both strive to influence the organism so that it may be brought into conformity with the conditions of its existence: the school-master, while inherent potentialities are becoming actualities, and while vital susceptibilities are most active; the physician, whenever harmony of function has been disturbed. The methods of the school-master are mainly psychical; those of the physician are mainly physical; but he would be a poor physician who ignored the fact of consciousness, and he would be a useless schoolmaster who gave no attention to the working of material forces. The schoolmaster may be the physician's best ally, by training the intelligence to the best conditions of health, and inculcating those principles of personal and social ethics from the neglect of which disease and death so often arise. And the physician may aid the schoolmaster in his task by teaching the laws under which the union of conscious intelligence and the bodily frame is maintained, and a condition under which the capacities and faculties of the mind may be most successfully evoked and strengthened."

---

* Education and the Nervous System, by J. Crichton-Browne, M.D., LL.D., F.R.S. Reprinted from the Book of Health.

The system introduced by Mr. MacAlister into Philadelphia has not been working long enough even in the lower schools—Primary and Secondary—to allow of any reliable investigations and comparisons as to the physical condition of the children as compared with the same under the old system.

Mr. D. W. Hutchin, one of the grammar school principals, in answer to an inquiry, writes to me as follows: "As far as I can learn from the teachers, there seems to be no observable difference in the health of our public school children of the lower grades, under the new order of things, from what it was before the old had passed away. To my inquiries upon the point, nearly all the teachers answer, 'I have not noticed any change.' As a matter of fact, few of the teachers seem to be looking for the good results of our new methods.

"The published reports of the Board of Education show a slight decrease in the amount of sickness, and a corresponding increase in the attendance. In 1882, the number absent on account of sickness was 9.58 per cent. of the number belonging during the year, while in 1883 it was 9.19 per cent., and in 1884 but 8.50 per cent.

"The average attendance during the same years, excluding the sick, when compared with the average number belonging, was as follows: 1882, 79.86 per cent.; 1883, 81.03 per cent.; 1884, 82.27 per cent. Believing that these figures do show a tendency towards a better state of things, I take the liberty of sending them to you."

One grammar-school principal writes to me with reference to this matter as follows: "The grammar schools are not feeling the full effects of the new system, but I believe that in the hands of faithful teachers the new system is far superior to the old, as its aim is to cultivate the reasoning faculties; but its success will depend on the faithfulness of the teacher, as any attempt on his or her part towards cramming or verbatim recitations, or teaching of rules, will be a failure. Again, it is founded on the inductive method."

Partly as a result of these investigations, and partly as a result of efforts made by members of the Board of Education and others, much improvement has been accomplished; and I am told seventeen hundred schools have been changed with reference to this matter. Still faults remain, and in my own personal investigations I found some of these. In one of the schools in the lower part of the city I found the children in two of the lowest grades of the primary divisions were sitting in perpetual twilight. It was impossible for those on the inner form to use the eyes without injury. The teachers told me that on days at all dark it was necessary to light the gas. This is sufficient to indicate that there are still some drawbacks of this kind. I found some other schools in which this same condition existed, but not to so marked an extent.

In spite of the improvement made, the ventilation of the schools of Philadelphia is still very bad. Some of the newer schools, built within recent years, are furnished with improved methods of ventilation, but even in some of these the methods do not work well. In the majority of the schools there is no special system of ventilation—only the ordinary window method—and even in connection with the windows no special apparatus. In the Boys' High School the ventilation is by means of windows, and I discovered a great difference between the temperature of the rooms and that of the halls. I found on one occasion over sixty boys crowded into one room of this school, a room that had not seating capacity for more than forty, and should have accommodated only thirty.

With the assistance of Dr. M. H. Bochroch and Dr. E. J. McOscar, temperatures were taken in a number of the schools. While they were not very high, they were almost uniformly a few degrees higher than they should have been. The mere question of the state of the thermometer is not all in the discussion of questions of this kind. In many schools we found the temperature ranging about 74 degrees; in others 75; in others 76; the temperature as a rule ranged from 70 up to 75 or 76, but more commonly up to 73 or 74.

One great defect in the public schools of this city is in connection with the opportunity for exercise which is provided for the children. In some of the largest schools, in the best sections, the children have absolutely no place to engage in healthful physical exercise. In one of these large schools in which the number of pupils is perhaps 1000, there is only a small side yard which is used chiefly by the girls, the boys having no place for exercise. Of course, much of this cannot be helped; still parents, teachers, and all good citizens should look out for the future. In many cases where no other opportunity can be afforded for exercise, the cellars and basements might be fitted up for this purpose. There is no inducement for children to make use of the recesses unless they have the opportunity and place to exercise. This I believe is one of the causes, with other hygienic deficiencies, of much of the ill health which has been reported.

I cannot go into the subject of drainage and sewerage, but in two or three of the schools a shocking state of affairs was found. In the Sargent Street Girls' Grammar School, where, by the way, the teachers meet weekly to discuss health and educational matters in a certain room, the atmosphere was simply mephitic. Certain glaring defects existed in the sewerage arrangements and the position of this room to the water-closet.

A sound nervous system is undoubtedly a most important factor, so far as an individual's capability of education is concerned. A good education will do more than anything else to develop and strengthen the nervous system. The lay ideas of mind are peculiar and warped, and in this fact is to be found one of the faults in dealing with the question of education. It is forgotten by educators, and those who control and govern educators, politically or otherwise, that the equal and even development of every part of the human body is essential to the perfection of the nervous system. In one of the lectures to teachers at the Board of Education rooms, I heard repeated the old expression that the special senses are the gateways of the mind. This is true; but they are more than this; they are an essential part of the mental apparatus itself. Many years ago Gall and Spurzheim gave us a phrenology which was first received with skepticism, then believed in by multitudes, and finally hooted at by all but a few. Their peculiar views have properly enough gone by the board, but the germ of a great truth was in this old phrenological science, and by better methods in abler hands this has been developed in recent years into the great doctrine of brain localization.

When the hand is used for any delicate work, when the arm is employed in striking or pulling, when the foot and leg do their part in dancing or walking, when the eye gazes upon a landscape or takes in the contents of the page, when the ear is tuned to music or to discordant sounds, when the sense of touch is exercised, certain special regions of the brain re-act in consequence of the peculiar peripheral impressions which are made. The resultant of these re-actions, combined with the processes of attention, memory, association, judgment, etc., constitute that great something which you choose to call mind. The leg, the arm, the eye, the skin, each has its mental response so far as its physical activity is concerned.

Without going into any metaphysical discussion as to what mind is, no doubt can exist that the nervous system, and particularly the brain, is its chief organ. In this sense the mind is the result of the harmonious working together of all parts of the brain, and all parts of the brain are connected, more or less directly, with all parts and organs of the body. Mind is not a little something located in a small portion of the encephalon—in some little gland, or minute bone cavity.

It may be laid down as a general proposition that overwork, physical or mental, is capable, directly or indirectly, of producing the most serious disorders of the nervous system and mind. Mental overwork differs from physical overwork in essence simply in the fact that different or larger cerebral areas are concerned in the production of the effects of effort. It is only on special occasions, if at all, when higher intellection, pure and simple, is going on, that the regions of motion and sensation are not concerned in the production of what appears as the mental output in a given case. Indeed, in this great fact that physical activities, normal or abnormal, specific and definite, so far as certain acts are concerned, accompany higher mental activity, and that the brain is detrimentally acted upon in a two-fold manner, resides the explanation of some of the worst evils of so-called mental overwork. It is mental overwork and the physical and emotional strain which go with it, that lead to the dire result.

[To be concluded in November.]

THE DOCTOR AS A SANITARIAN*

BY THOS. W. HARVEY, M. D., OF ORANGE, N. J.

I do not mean the doctor as a sanitary engineer, or the author of a sanitary tract, or as a member of a board of health, but in his daily avocation of adviser on his daily round of visits.

It is in the details of every-day life, in the management of the household, in the practical application of sanitary principles to housebuilding and housekeeping, in the education of his patients in proper ways of living, in the application of those great principles which, a rare compound of scientific thought and good common sense, constitute that new department of knowledge, sanitary science.

---

* Extracted from the *Medical and Surgical Reporter*.

The interest in this science is widespread, its literature is already voluminous, its professors are recognized authorities, working for the good of the community; but its quackeries are also becoming prominent, and in few other departments of learning does so much "half-truth" pass for law and gospel. The proprietor has but to cry up some weak combination of salt and carbolic acid as a great parasiticide, putting in his advertisement a lot of gush about sanitary laws, bacteria, Pasteur, etc., etc., when its sale is assured. The people are receptive of all such stuff, their minds having been carefully prepared for its reception by the close study of the scientific column of the religious weekly. This imperfect knowledge of sanitary facts is not confined to the laity; it is the rule in the profession, and should be corrected. No person in the community may have more influence for the spread and acceptance of correct knowledge on these matters than the physician. There is no one whose opinion is asked oftener. He is the one of whom first the head of the family asks the question. "Is there anything the matter with my drainage?" How ready every doctor is to answer the question! It does not look well not to know, not to be able to say just where the trouble lies. It redounds so to his credit in the community to have it said that "The doctor looked over my pipes and pointed out the difficulty at once. *I had no traps.*"

It is my experience that not one physician in ten is qualified to make such an examination. And I might go further and say that very few *know* that such an examination is impossible in nine-tenths of the houses that have been built more than five years.

This state of affairs is very much what it is in medicine proper. The opinions prevalent among the laity are what passed for facts and true theories among the last generation of medical men. We are to-day combating among the people the errors that our fathers in medicine combated in the profession. So in sanitary science what passed muster as good practice fifteen years ago with the professed sanitarians, is still considered the highest kind of sanitation among the people at large and the mass of medical men. We are not keeping abreast of the times. For instance, some ten or fifteen years ago the trap was considered the magnum opus of sanitary skill. Stick a trap on a pipe, and the terrible gases that cause disease, the sewer gas, was imprisoned and done for; it was a stopper that was hermetical. But it took but little time and common sense, and the application of known physical laws, to demonstrate that the trap *per se* was useless. In some places, as between the foundation of the house and the street sewer, it was not only useless, but actually harmful, preventing that free circulation of air through the pipe system, that is the most active and only successful disinfectant agency that can be applied.

Again, this same "sewer gas" has come to be considered a misnomer, or at least a misapplied term. Sewer gas there undoubtedly is; at least in every receptable containing decomposing organic matter there are present the gases resulting from such decomposition; but those gases that make bad smells in the house do not come from the street sewer. Said a well known sanitary authority, in a recent lecture: "I know of no instance where a bad smell is found emanating from plumbing fixtures that have *not been used*, although connected with the public sewers for some time."

The proper term to be used is "*fixture gas*, and I think the importance of a proper name is evident. The name suggests the treatment and is the basis of the modern arrangement of pipe systems in houses. The aim is not to keep sewer gas or air out of the pipes, but to so arrange the system that what gets in may easily get out, and also that plenty of good fresh air may continually flush them and purify the foul gases that are formed in them.

I mention these instances as indicative of the changes that have taken place and are taking place in the minds of those who are working most actively in this great art of preventive medicine, and because I find such crude ideas prevalent in the profession.

Most medical men are still in the trap and sewer gas period of their sanitary development.

A man imagines that by walking into a bath room, smelling at a wash basin, and calling a closet by its pecular name, that he is thereby constituted a sanitary authority, and that he has made an examination from which he may give an opinion that may involve the expenditure of much money to rectify.

I do not want to urge that every doctor should be a sanitary engineer or a practical plumber, but that he should either cultivate a more practical acquaintance with sanitary science, or should have the grace to say that he does not know enough of it to express an opinion. Perhaps at the present time this is all that should be asked. But the physician should know as thoroughly the principles of practical sanitation as he does his anatomy or physiology, particularly the general practitioner, who every day is becoming more and more the *counsellor* in health matters. The specialist is gradually getting away his "practice," but his "advice" is sought more than ever, if it is only to ask to what specialist the patient shall carry his ills; and indeed it is getting to be a serious thing, and a position requiring much judical acumen, to decide whether the invalid is to be sent to the neurologist, gynecologist, or oculist.

It is evident to every one that more advice as to the way to avoid future sickness is expected from the general practitioner than formerly; and that he may fulfil his duty properly, a much more profound and exact knowledge of sanitary principles is necessary. I think it is the duty of the profession to urge the establishment of chairs of practical hygiene in our medical colleges.

It is also well to remember that the duty of the physician covers the recognition of the causes of disease and wrong conditions generally, but does not necessarily include the details or method of correction.

Another field where the physician is specially needed at present is in correcting the great amount of misinformation that prevails popularly among our people, and to stay the great streams of error that threaten to drown out the little knowledge that we now have. These are the times when the great "anti" societies flourish, and this sanitary movement has been prolific in the production of "cranks," full of half-digested facts and crude theories which may disseminate among the people, to many of whom such praters appear as disciples of light and the only possessors of true knowledge.

It is time then that the well-informed physician should recognize that this field is one in which he should be the best informed man in the community. He should be the source to whom all should look for their information regarding health, both for restoration and for preservation.

Every physician represents a circle to which he is already an authority in most matters in curative medicine; perhaps by a certain number he is counted second to the medical almanac, but there are a few people among whom his opinion is final. If he decrees death, they die; if he formulates a rule of life for the preservation of health, they will follow it implicitly and will preach it to others.

How necessary then that he should know thoroughly the "reasons why" of our sanitary rules. I know of no department in medicine that requires more of that hard common sense that is the characteristic of the successful general practitioner than the correction of sanitary evils. On the other hand, there seems also necessary the cultivation of a faculty for seeing what lies before the eyes, and of recognizing bad conditions when present.

Every doctor, therefore, who acts as family physician, should know first what to look for and then where to look for it. It is not necessary that he should ride on the crest of the bacterial wave, or that he should feel perfectly satisfied that he knows exactly the cause of scarlet fever or diphtheria—better not; the fewer preconceived opinions he has, the less his mind is occupied by library-made theories, the more likely he is to see what actually exists, rather than what he expects to find.

There are a few cardinal principles that should guide his search.

Whatever changes the air that we breathe from its natural condition is an impurity.

The same proposition holds good as to food and drink.

The most useful disinfectants are the sunlight, the oxygen of the air, and pure water. Dilution is nature's method for purifying the air, aerations for purifying the water.

Whatever is a source of impurity to the air we breathe renders us liable to disease by depressing the vital forces and weakening the normal resisting power of the individual tissue cells. The same is true of impurities in water or food.

Any system of sewage collection, carriage, storage, or disposal that does not provide for thorough ventilation and flushing both with air and water, and give plentiful opportunity for cleansing, is faulty. The mechanism is unimportant, so the object sought is well recognized, which is not the getting rid of the waste of animal life in the speediest manner possible, but the return to its original elements of the products of the decomposition of this animal waste in such a rapid and complete way that it may not add impurities to our air and water, or food.

It is not within the compass of this paper to point out the application of this rule to the plumbing of a house, for instance. But if such a system is not made to comply with the requirements of this rule to the letter, it will be a source of ill-health to those who are served by it.

Every physician who will approach these problems with his mind unbiased by previous speculations as to the causes of diseases or as to particular systems of drainage, or in the larger field of the management of epidemics, and will apply to them the same methods of reasoning that he uses in the study of diseases when established and their cure, will find that they are usually easy of solution and productive of much mental gratification to himself. Further, by so much as he becomes familiar with the recognition and treatment of insanitary conditions, by just so much he becomes a more useful member of society, and a more valuable adviser to his patients.

THE GLASGOW EPIDEMIC.

BY THOS. J. B. RHOADS, M.D., OF POTTSTOWN, PA.

At your request to have my account of the Glasgow epidemic for publication, I will state that I had the pleasure of seeing, in consultation with Dr. W. H. Eck some time ago, several cases of the Glasgow epidemic fever, and will give you a brief article on the nature and cause, in my opinion, of the disease for the benefit of those of your readers who will take the time to peruse it.

The first case seen was a married man, residing on —— Street, Pottstown, apparently about forty years of age, who was convalescing from the disease after a five weeks siege, which had left him in an extremely emaciated and debilitated condition. The wasted form, the tremulous limbs, the haggard expression indicated that some wasting disease had been preying upon his vitals and came near putting an end to his earthly career. The symptoms of his case, as elicited by verbal examination, pointed unmistakably to typhoid fever in a modified form as the nature of the complaint. That the disease is communicable to those in attendance upon the sick is plainly evident, for at the house of the case above cited the wife was down with unmistakable symptoms of typhoid fever in the second week of the malady. The rose-colored spots, petichiæ, and diarrhœa with delirium were there as unerring land marks, as it were, of a fully developed case of that disease. Instances of this kind, in the present epidemic, are numerous, where different members of the same family contracted the disease from the first victim in such family. Other cases seen were of the same general nature.

That the cause of the trouble lay in the water drank by the workmen, I have not the least doubt, but just what proportion of cesspool contamination or surface drainage of the immediate surroundings of the iron works entered into and became potent factors in producing the germs upon which the disease depended no one can tell. Neither would any one for a moment suppose that the owners of the property were morally blamable in causing the trouble, for no one can pry into the hidden laws or discern the hidden process by which nature generates deleterious substances and organisms in the dark recesses of her laboratory.

Persons who have any experience in making excavations in the vicinity of cesspools, particularly where such extend into the bed rock, are aware that the fissures of rock are filled with excrementitious matter in minute particles as made apparent to the olfactories. It needs but a continuous and copious rainfall to reach these fissures and crevices in the rock through percolation, and all matter thus filtering through this matter to the water-level will necessarily convey more or less of this substance with it, either in solution or admixture, and thus contaminate the water. If such impurities are carried along in sufficient quantities by admixture with the water to become visible to the naked eye, or the eye aided by the microscope, the water is regarded as impure; but the matter may be held in solution and hence may be invisible to the naked eye, and yet the germs of disease may be lurking in the water all the same, and it needs but a favorable nidus and the propagation of the disease germs takes place, insidiously at first, until the alimentary canal becomes affected to such a degree that the system, now fully surcharged, is unable longer to cope with the disease-producing germs, and the symptoms so well known to the profession manifest themselves.

That the disease should affect all alike is not to be expected. Peculiarities of constitution, temperament of different individuals, variable modes of living, state of health previous to the attack, concomitant presence of other diseases at the time of infection, and variable quantities of water used, are all important factors in modifying the disease as it presents itself.

I believe the water of the well where the workmen draw their supply from was analyzed and found to be impure, and pronounced unfit for drinking purposes. After the well had been pumped dry and cleaned out, the water was again subjected to analysis and found to be pure, so far as chemical analysis could determine. Whether the water was examined by a microscope I have not learned, but presume it was. The substances of contamination might have been held in solution in such extremely minute particles that the microscope failed to reveal their presence, and equally so with the analytical test. Can the analytical chemist or the microscopist detect the presence of the aroma of the rose in the air of a room? By no means at present known to them, and yet we are made aware of its presence by the grateful and agreeable impression made on the olfactories and thus conveyed to the brain. Neither can we by the sense of smell detect the presence of odorless gases. Yet we know them to exist, as made manifest by their affinity for liquids and solids. Nor can the microscope detect the presence of malaria in malarial districts; yet we know it is there, and has been a fruitful source of revenue to the Pottstown physicians during the last three or four years. It has been a hobby horse which all have been riding successfully for several years past. It is this which has given a number of cases of the Glasgow epidemic the character of a remittent form of fever,—*i.e.*, it is typhoid fever modified by malarial miasm, or in other words, typho-malarial fever, of which we had scores and hundreds of cases under treatment while in the army during 1862 and 1863. Those of the victims of the epidemic whose systems were uncontaminated by malarial poison, would in my opinion be well-marked cases of typhoid fever. On the other hand those who had malarial poisoning lurking in their systems at the inception of the typhoid fever germs would have typho-malarial fever. The experience of my medical brethren of Pottstown and vicinity will, I think, bear me up in this assertion.

When General McClellan occupied the valley of the Chickahominy River, of Virginia, with the Union forces in 1862, a great many of the Union soldiers became affected to an alarming extent with a disease identical in its nature, only of a much more intense character. The river flows in a sluggish manner through a marshy and intensely malarial district. A great many of the soldiers, worn down by excessive duty, being obliged to snatch a few hours rest with mother Earth for a bed and a shrouded canopy of Heaven for shelter, not having as yet become acclimated, became affected with malarial fever, similar in some respects to the malarial fever as it prevailed in and around Pottstown during the last few years, yet much more intense in its character. This soon acquired a typhoid type, and was then called typho-malarial fever by the surgeons generally. Many of the weaker ones succumbed before the typhoid symptoms had become fully developed, and autopsies on these failed to find the characteristic symptoms and lesions of typhoid fever; others merged into true typhoid fever, which was proved by the ulcerated and diseased Pyer's glands in making post-mortem examinations; others again of the more robust class who were able to combat the disease successfully got well, with the malarial symptoms predominating. This corresponds exactly with the disease as it presented itself in the Glasgow epidemic. Some of the Glasgow cases got well in six days. These were manifestly not of typhoid but of a malarial nature. Others who lapsed into a typhoid state were the typho-malarial cases that got well before the disease had progressed so far as to become true typhoid fever; while the severe ones lapsed into genuine typhoid fever *per se*.

Having said this much as to the nature and pathology of the disease, I will try to explain why the workmen of the Glasgow Iron Company have been suffering from the disease while those of other iron works have been exempt.

Persons acquainted with the topography of the new red sandstone—the so-called red slate or red shell district—know that the soil in many places is very shallow, notably so along the Manatawny in the vicinity of Glasgow. In many places the laminated rocks are denuded of soil; in other places barely covered. Any impurities accumulating in such localities will find their way through the fissures of the rocks into the adjacent wells and springs in an imperfectly filtered condition in wet seasons like the spring and summer of this year. In like manner and under similar conditions the fluid contents of deep cesspools will find their way into the same outlets. The copious and frequent rainfalls carried the impurities of the surface through the thin layer of soil into the fissures of the shale, and thence into and out of the nearest vents. In deep soils, with clay subsoil, percolation proceeds more slowly, and consequently filtration and purification are more complete. In dry seasons percolation is carried on more slowly, and consequently filtration is more complete in any soil under such conditions. In deep soils larger quantities of water are held in suspension, and in those regions we have the never failing springs of pure water. In shallow soils the water held in suspension is soon drained off, and then we have the dry wells in seasons of little rainfall.

This, then, is the whole secret of the cause of the Glasgow epidemic, viz.:

The shallow soil of the Glasgow region, underlaid by the laminated red shale, permitted the surface impurities, by rapid filtration during the rainy season, to enter the crevices and fissures in an imperfectly filtered condition and contaminated the adjacent wells and springs, invisible it may be to the eye not detectable by chemical analysis, nor by the special senses of taste and smell, yet potent enough to produce all the sufferings and misery in so many households. And the end is not yet. Numerous members of the afflicted families will be stricken with the malady before the disease will be finally eradicated. Many cases of typhoid fever exist even now in Pottstown and vicinity, some in the families of the identical Glasgow cases, and others among the neighbors and friends. Were these cases fully investigated, I do not doubt that fully two-thirds of the cases could be traced to the Glasgow epidemic as the primary cause. To my personal knowledge, several serious cases of typhoid fever prevail in the families of those first attacked.

As regards the treatment of the disease, much might be said. Were I to lay down a course of treatment to be followed in each individual case, under the many varying phrases it is met with, the task would be a laborious one indeed. The routinist who follows the same plan of treatment in all cases has a very poor conception of the pathology and treatment of the disease. Different temperaments require different remedies; constitutional peculiarities require careful study on the part of the medical attendant to guide them safely through the ordeal; ventilation should be well looked to and rigidly enforced; the excreta should be removed as soon as possible and disinfected; the bed clothing and linen of the patient should be kept clean and aired as often as possible; the room and furniture should be ransacked daily to remove all adventitious substances and furniture not required in the sick room; the diet must be carefully attended to and given at regular intervals, and this should be of the farinaceous kind.

With these few suggestions, I will leave the subject of treatment in the hands of the intelligent medical fraternity of Pottstown, than whom no more capable, competent, careful, and intelligent medical practitioners can be found anywhere in the inland towns of this great commonwealth.

REMARKS ON THE PREVENTION OF SCRIVENER'S PALSY OR WRITER'S CRAMP.*

BY FRANK WOODBURY, M.D.,
Professor of Therapeutics, Materia Medica, and Clinical Medicine in the Medico-Chirurgical College, Philadelphia.

Among the compensations required by the high state of civilization in which we live are a class of disorders to which Benedikt has applied the rather unwieldy title of "Co-ordinated Business Neuroses" (Coördinatorische Beschäftungsneurosen), and which are usually grouped under the name of Professional Dyskinesia, or Anapeiretic Paralysis (Hammond). They are met with in every walk of life; clerks, stenographers, telegraph-operators, typesetters, tailors, carpenters, watch-makers, blacksmiths, musicians, milk-maids, seamstresses, ballet-dancers, and, in short, all who are called upon to perform delicate, more or less complex, muscular movements, which are repeated over and over again, with unvarying regularity, day by day, month by month, year after year. As those persons who use the pen constantly in writing are by far the most numerous of these professional laborers, it is not surprising that cases of writer's cramp or scrivener's palsy are frequently encountered, or that this condition has been studied more thoroughly than the other forms of professional paralysis. In fact, it is so well known to all that a description of the affection is rendered unnecessary in the way of introduction to the few remarks which I have to offer upon some of the means that may be adopted for its prevention.

---

* Read before the Philadelphia County Medical Society at a meeting held September 8th, 1886.

With regard to the question of diagnosis, however, I might be permitted to observe that Graphospasm can be readily distinguished, by the exercise of ordinary care, from disorder of the writing faculty accompanying hemiplegia (Agraphia), locomotor ataxia, and progressive muscular atrophy (the muscular disease), or that due to neuritis of the branches of the brachial plexus, or produced by pressure upon the nerve-trunks by a tumor. Dr. Poore, for instance, reports a case of progressive difficulty in writing, going on to complete illegibility, which was caused by the pressure of a subclavio-axillary aneurism. Of course, no one need confound writer's cramp with brachial monoplegia, lead-palsy, or rheumatic paralysis of the fore-arm, although such mistakes have been made.

The characters peculiar to artisan's cramp are weakness and spasm. These are not always experienced, however; as the attacks may come on, without premonition, immediately upon attempting to do certain work, or after it has been performed with comparative facility for a greater or less period of time. All writers upon the subject recognize a strong emotional element in the disease. McLane Hamilton, who regards the disorder as due to excessively developed automatism, claims that those who write and compose at the same time are less likely to acquire the disease than clerks and copyists who do "machine work." My own observation leads me to believe with Poore, that the contrary is the case. That is to say, the amount of actual work performed being the same, the person whose mind is most exercised will be more likely to be attacked by writer's cramp than he who merely writes automatically. This view is sustained by experiment as well as by observation. Drs. Dercum and Parker found from a series of experiments that convulsions could be produced by subjecting a group of muscles to constant and precise effort, the attention being at the same time concentrated upon some train of thought.*

The problem of prevention, fortunately, is not materially affected by the very different views which are held as to the pathology. Erb regards it as essentially a nerve-disorder, involving the central ganglia which affect the association and coördination of the muscular movements for the more complex actions. Dr. Frank Smith discovered in certain cases of hammerman's palsy (hephæstic paralysis) lesions in the cerebral hemispheres. Reynolds, Ross, and Hammond regard writer's spasm in like manner to be due to disorder of the spinal motor cells and cerebral nerve-motor centres, although our present means of investigation may not permit us in each case to detect the precise anatomical lesion. The other view is that of Zuradelli, ably defended by Dr. Poore, that the starting point of the morbid change is the exhaustion of certain intrinsic muscles of the hand which are most taxed in writing. "One or more of these begins after a time to respond sluggishly, or not at all, to the stimulus of the will. The patient then unconsciously calls into play other muscles, generally those of the fore-arm. In their turn, these too become worn out, and the process of substitution is carried on indefinitely, and always with the same result."* It is possible, even highly probable, that both nerve-centre and muscle suffer in their nutrition in well-marked cases of writer's cramp.

---

*Quoted from Dr. Lewis's article on the Nervous Disorders of Writers and Artisans. Pepper's System of Medicine, Philadelphia, 1886, Vol. 5, p. 529.

Two forms have been distinguished, depending upon whether the spasm or the paresis is the more prominent feature in the individual case, and this distinction, which has no great value, is shown in the popular names of the disorder, writer's cramp and scrivener's palsy.

Although relief may be afforded by galvanism, massage, and passive movements, as in Wolff's method, the affection is scarcely susceptible of complete cure. For this reason the prevention of such a disabling malady becomes of the first importance.

Before discussing the means of prevention, it should be stated that a hereditary element must be recognized in this as in other functional disorders, and descendants of persons subject to any form of artisan's cramp must adopt extraordinary precautions if they would escape from being attacked themselves.

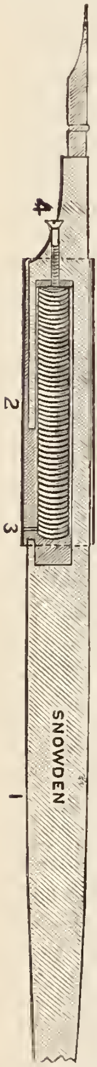
The first of the means to which I invite attention is the manner of holding the pen in writing. I wish to insist upon the correctness of the view which regards a faulty system of writing as the most prolific cause of this disorder. I maintain that while the pen is *held* by the fingers, the movements of writing should be made by the hand and not by the fingers. Children at school should never be allowed to write or work their exercises with short stumps of pencils. Whenever the hand is engaged in the act of writing, the pencil or pen-holder should be long enough to pass from the tip of the second finger to a point a little beyond the metacarpo-phalangeal joint of the first finger, being held in this position by a light pressure of the thumb, the fore-finger lightly resting upon the upper surface of the holder just above the pen. The anterior surface of the fore-arm is allowed to rest upon the desk or table, while the whole hand, supported upon the extremity of the little finger, moves with each stroke of the pen. Writing by this method is less fatiguing than when done principally by the fingers. Writing with steel pens has been accused of causing the affection under consideration, but the resort to a "good gray goose-quill" is certainly no safeguard against it. It is a fact, however, that those who have much of this kind of work to do usually prefer a gold pen.

The character of the pen-holder is by no means unimportant; especially in the early stage of the disorder. Some authorities recommend, instead of the pen, to use a lead-pencil only, or the stylograph or fluid-pencil. Many pen-holders have a smooth metal barrel or sheath for the pen, which, especially in warm weather, has a disagreeable slippery or greasy feeling to the fingers. Although not much importance is to be attached to the statement that electrical currents are generated by the scratching of the pen upon the surface of the paper, it will be found that decided relief is obtained from having the holder made of some non-conducting material, such as hard rubber or cork. A simple but very useful device I show here. It is a soft rubber tube or shield, which is to be slipped over the part of the pen-holder which comes in contact with the fingers. The amount of comfort to be obtained from this by persons who are very sensitive to peripheral impressions is entirely out of proportion to its trifling cost.

In cases where the spasm is a marked feature, and the patient finds himself stabbing the paper with his pen, I think that a form of holder which I invented some years ago might be serviceable by keeping the point of the pen at a uniform degree of pressure upon the paper, and by imparting a sense of security to the patient. This instrument was mentioned by Dr. D. F. Lincoln in his work on "School and Industrial Hygiene," published by Blakiston in 1880, but it has not previously been shown before any society.* (See figure.)

---

* Fagge's Practice of Medicine, Philadelphia, 1886, vol. 1, p. 641.



The only peculiarity about this pen-holder for the prevention of writer's cramp is the separation of the pen and its holder from the portion which is grasped by the fingers in the act of writing. In the diagram it is observed that the instrument is an ordinary pen-holder with the addition of an outside sleeve surrounding its lower portion, which is held in place by a concealed spring, and which is movable in one direction (downward) to the extent of about half an inch. [The artist has made the slot too long.] The object of this is that if undue pressure be made upon the point of the pen, the spring will yield in proportion to the force and allow the fingers to be extended without perforating the paper; the usual relative position of the fingers and pen will be at once restored as soon as the pressure is intermitted. This pen-holder could be made in several sizes to suit different persons, since some prefer a thick holder; and the stick could be made of cork or hollow vulcanized rubber so as to secure the necessary lightness.

Variously shaped pen-holders have been constructed for the purpose of assisting the subjects of this annoying affection to write. One of Dr. Poore's patients used a pen-holder in the shape of a "top," which he grasped with his whole hand. Velpeau's well-known apparatus consists of an oblong ball, made of wood or hard rubber, to be held in the hand. To this are attached a pair of half-rings, which serve as rests for the index and middle fingers. A pen-holder passes through the neck of the ball at a convenient place near the extremity, which can be adjusted and made firm by a thumb-screw. With this apparatus a person affected with writer's cramp may be enabled to do a certain amount of writing that under ordinary circumstances would be entirely beyond his powers to accomplish. Matthieu's instrument is also supplied by the surgical instrument makers. It consists of two rings for the index finger, and a half-ring, properly distanced from the others, on which to rest the thumb. To these is attached a spring-slide, into which a common pen-holder can be inserted. These devices, however, are useful where the disorder already exists, and are never employed with a view to its prevention.

Until the phonograph, or some modification of it shall come into general use, a large proportion of the permanent record of the daily work of the world must be committed to writing by hand. This brings up the very interesting question of a substitute for the pen. One of the most useful of modern inventions is the type-writer, which I consider very efficient in preventing writers cramp. It is now largely in use among business men, but especially is it being adopted by authors, ministers, lawyers, editors; all of whom are accustomed to compose as they write, and are therefore, in my opinion, more liable to be attacked by this annoying disability. Dr. Lincoln, who is chairman of the Department of Health of the Social Science Association, considers it serviceable even after the disorder has been developed: in the work from which I have already quoted, he says, "the temporary use of the type-writing machine will often prove a great boon, permitting a continuation of work while resting the affected muscles."

---

* Revised edition, Philadelphia, 1886; p. 29.

In comparison with the ordinary method of writing, the advantage is all on the side of the type-writer. Instead of having one hand actively employed in performing very rapid and highly complicated movements while the other is almost absolutely idle (and probably this equally applies to the motor areas of the cerebral hemispheres), we see both hands engaged in movements, which suggest playing on the piano, but are less laborious. From personal experience I can say that with its aid, copying or extemporaneous writing is less fatiguing than with the pen.

After a trial of several, and an examination of others, I unhesitatingly pronounce the Remington No. 2 the best type-writing machine for my purpose that I have yet seen.

Through the kindness of the agents, Messrs. Wyckoff, Seamans and Benedict, I have the opportunity of exhibiting the latest improvement, the cabinet machine, which has special advantages for physicians, because when not in use, it is out of sight and out of mind, and is not an eyesore in the office like the ordinary type-writer with its special stand. A recent editorial in the Journal of the American Medical Association* entitled "Medical Writers and Type-writers:" concludes with a paragraph which is so appropriate that I will quote it in bringing this article to a close. The editor says:

"There are several reasons why medical men who write should use the type-writer. In the first place as a matter of economy of time, and hence, often of money. It is easily seen that there is a great saving of time with a machine that will do a piece of work in one-half or one-third the time that it can be done by hand; and this is easily accomplished with a type-writer. In the second place, the machine promotes accuracy, especially in thinking, for two reasons: being more rapid than the pen, the thoughts of the writer do not wander so far ahead of his work; and should he wish to refer to what has been written he can see it at a glance, as on a printed page. A third reason is, that the person who uses a type-writer sits erect, and can thus work for a longer time without fatigue than when bending over as in writing with a pen. It is thus more wholesome than the pen. The machine further promotes accuracy in the printing office—a great source of comfort to writers; and it promotes a degree of accuracy on the part of the writer in that he will not make a wavy line, or two or three letters and an apostrophe, do duty for a long word, and his punctuation marks, if not more correct, will at least be more numerous.

"With a machine, therefore, writing becomes a pleasure, with none of the discomforts accidental and incidental to the use of the pen."

---

* Journal of the American Medical Association, July 17, p. 22, Vol. vii., No. 3

THE HYGIENE OF OLD AGE.*

BY H. C. WOOD, M.D., OF PHILADELPHIA.

Professor of Materia Medica and Therapeutics in the University of Pennsylvania.

Within a few weeks the city of Philadelphia has been called upon to mourn the loss of the man who, although very far from intellectually the greatest within her borders, as a citizen was pre-eminently chief. Dying at the age of eighty or eighty-one years, he is universally spoken of as being gathered like a ripened sheaf; yet, within a week of his burial, he was full of mental and physical vigor, and his death at the time was as unnecessary and avoidable as though he had only reached threescore years. A very notable percentage of the deaths of persons who have been successful in life, and have attained beyond the seventieth year, could be, by proper care, long postponed. Failure in life in a large proportion of cases saps vitality, and the man who carries the load of self-knowledge of such failure lives under a persistent strain, whose effects, though usually not recognized, are none the less irresistible. In order to protract an advanced life it is well to understand not only the dangers that beset such life, but the reason why old age has been attained.

The humorist is greatest when underlying his rollicking is the lesson of a great truth ; but perhaps few readers, when they enjoyed the broad fun of the "One-Horse Shay," as portrayed by our inimitable Holmes, have recognized the fact that the man who reaches old age does so largely because he has been constructed upon the principles of the famous vehicle "that ran for a hundred years and a day."

Barring accidental deaths from railroad collisions, typhoid fevers, lightning-strokes, and other more or less preventable causes, the man who is so built that he is equally strong in all his parts, lives out his appointed days.

Excessive strength in one part is a veritable source of danger. The athlete perishes because his over-developed muscular system perpetually strains and finally wears out a heart or a lung that was originally constructed for a muscular apparatus of half the power of that which he has artificially built up. The larger proportion of mankind die early on account of some local weakness. It ought to be generally recognized that human age is not to be counted by years, and that in some constitutions the general tissues are older at fifty than they are in other individuals at one hundred. Many of the cases of so-called neurasthenia, or nervous exhaustion, of men and women suddenly or gradually breaking down at forty or fifty, ostensibly from overwork, are really cases of premature old age, and are to be nursed and treated precisely as other individuals would be who had reached to fourscore years. Moreover, a larger proportion of early deaths are the result of some vital organ being originally endowed with a longevity less than that of the rest of the organism.

The reason that consumption is so often utterly irremediable is to be found in the fact that in not a few cases the lung has reached its allotted term of days, and must die because its vitality is exhausted. If an eye, or other not vital part, fails from lack of vital power, the man exists; but if a lung dies, he perishes.

---

* Read before the State Sanitary Convention, held in Philadelphia, May 12th, 13th, and 14th. From advance sheets of Annual Report.

The result of these lucubrations is to lead us to this point, namely, that the individual who enjoys fair health at seventy-five years of age has probably been built upon the principle of the "One-Horse Shay," and that he should be treated as a wise man would treat such a venerable instrument of progression. He would certainly keep it off Philadelphia cobble-stones, and allow it only to be bowled along some smooth turnpike, and especially would he avoid all jolts and jars which would throw an unexpected strain upon one part. The principle involved in such case is that which is most vital in the treatment of the old,—protection, and especially protection from strain of any one vital part. An old man exposes himself to inclement weather, and especially to a high wind, which suddenly drives the blood from the surface upon the internal organs, and at the same time by its very force checks the enfeebled movements of respiration, which aid in forcing the blood out from those organs. As a result, the man perishes at once, because he has thrown too great a strain upon a weak heart, or, if able to momentarily resist the strain, dies in a few days of pneumonia, due to the congestion of the lung. I have known the sudden shock of good news to strike the old man down, as fatally as the pole-axe fells the bullock, by causing the blood to rush with renewed force through the brain, and tear its way through the weakened walls of the blood-vessels. Again, the violent emotion of a sudden bad news may overwhelm a heart which, with care, would have sufficed for its duties for many years. The young athlete in the boat-race pulls at his oar until he drops from heart-strain, and, if the heart-strain has not been too severe, recovers himself in a few weeks, because the vital elasticity of the heart-tissues is in highest vigor. But the enfeebled and brittle heart-muscle of the old man, strained in some hurried effort to catch a railroad train, or in some equally unreasonable procedure, has no power of recovery, and rests itself only in death. What is true in regard to the healthy ordinary conditions of the old man is more abundantly true in regard to the diseases of the old. Medicines that perturbate—measures that bring relief through violent local actions cannot be borne, and are not to be employed. At the same time, when possible, it is most essential to arrest at once any incipient disorder in the aged. I knew an old doctor, renowned in all lands, who lived ten years beyond the period attained before by any one of his name, largely because, knowing himself thoroughly, every few weeks he arrested in its inception an attack, which, in a few hours, might have gathered fatal force.

I feel some hesitation in attempting to point out in detail the application of the principles which have just been enunciated, lest this paper may fall into the hands of aged persons, and be substituted for a careful consideration of their individual cases by some skilful medical practitioner.

Every person, when he advances in years, should go over his whole methods of life and personal habits with some wise counsellor, and should adapt his mode of life to the peculiarities of his individual case.

With this warning, it is probably safe to briefly point out some of the more important details in the regulation of the life of old people. The first question is in regard to food. The teeth in old age are, of course, lost, and they should, unless under exceptional circumstances, be replaced by artificial teeth, for the thorough chewing of food is even more necessary in the old than in the young, because in the old the digestive powers are apt to fail. With the best artificial teeth, mastication is apt to be imperfectly performed ; hence the food of the aged should be soft and readily comminuted, and especially should it be of easy digestion. Very few old people need stimulating diet; very many are injured by an excess of nitrogenous food. The kidneys, like all other organs, are feeble, and, if meats and other rich foods are used in excess, they greatly increase the strain upon these organs. Milk and milk products, or preparations of breadstuffs cooked with milk, should form a very large proportion of the food of the ordinary aged individual; but individual peculiarities differ so much that personal medical counsel should in all cases be taken, so that the diet may be regulated to the needs of the individual case. Very many old people are hurt by the use of food in excessive quantity; but little exercise can be taken, all growth has ceased, and the bodily furnaces which make heat are able to destroy but very little of food fuel. Some little time since I had occasion to lecture on this subject at the Philadelphia Hospital, and an assertion that I then made that most old people are more comfortable, enjoy better health, and probably live longer for the use of wine, has met with very severe disapprobation at the hands of some of the profession, whose strong sympathy with the temperance movement dominates their judgment. No valid reasons have, however, so far as my judgment goes, been brought forward to lead me to change my opinion. In the overfed American people the habitual use of wine during youthful or middle age and vigorous health is, we think, an injury rather than a good; but when the powers of life are failing, when digestion is weak, and the multitudinous small ills of feebleness perplex and annoy, one or two glasses of generous wine at dinner aid digestion, quiet for the time being much nervous irritation, and in no way do harm. The sum total of ruin wrought by alcohol in the world is appaling, but it is not lessened by our shutting our eyes to the good that wine properly used may achieve. When in the aged there is a distinct failure of vital power, and especially of digestive power, the call for the habitual use of alcoholic liquors is, in my opinion, imperative. The danger of the formation of any evil habits when a man has crossed the line of seventy is so slight, that the most conscientious physician need not hesitate in recommending the daily use of alcoholic beverages to his patient.

It is, perhaps, not universally recognized, that in numerous cases of various character death finally is due, in greater or less measure, to cold and to an absolute failure on the part of the body to keep itself warm. In the old the heat-making functions are exceedingly low and hence it is that few old people are comfortable in a room whose temperature is less than 80°. It is especially important, therefore, that an abundance of clothes be worn by old people ; but the very weight of the clothes oppresses, so that it is important that lightness of material should be combined with warmth. There is no ordinary garment which compares in heat-preserving powers with the buckskin jacket, and, in our climate, every man who passes the seventieth year should furnish himself with such covering. At first the jacket should be only worn when going out of doors; but in very advanced age it should form a part of the habitual underwear. The jacket should be high up in the neck and long in the sleeves, and should be of such a length as to thoroughly cover the abdomen. If worn as an under-jacket, it should be perforated so as to allow the escape of the vaporous emanations from the body. Whenever there is any tendency to abdominal weakness, in addition to the jacket and the ordinary warm underclothes, an abdominal flannel bandage should be worn. It ought not to be forgotten that the mass of blood of the human body is in the abdominal organs, and that this is especially so when the circulation is sluggish. It is affirmed by authority, that after death all the blood in the body can be put in the relaxed abdominal vessels; hence the importance of maintaing the abdominal warmth, and hence also the good effect in feeble people with pendulous bellies of the bandage, which helps to sustain the relaxed vessels, and thereby maintain the general circulation. The mechanical effects of tight abdominal bandages are well understood by the profession in the treatment of ascites. It is well known that the sudden removal of the fluid by tapping over the abdominal cavity takes away so much pressure from the abdominal vessels as to cause them to relax, and draw the blood away from the heart and lungs and brain in sufficient quantity to produce fainting. It is to prevent this that the patient about to be tapped is bound up, and the bandage continually tightened as the water flows off. The importance of the habitual abdominal bandage is, perhaps, no less although not as universally recognized.

THE HYGIENE OF NATURE OR THE RELATION OF IMMUNITY FROM DISEASE TO NATURAL SELECTION.

BY ROMAINE J. CURTISS, M. D., OF JOLIET, ILL.,

Professor of Hygiene in the College of Physicians and Surgeons, Chicago, Illinois.

The broad meaning of immunity from disease is that any given person, or a community, has acquired, either directly or by inheritance, a vital resistance to the causes of disease. One feature of this immunity of course includes the protection which may be given by sanitation, but, in this paper, I propose to refer only to the protection from disease which is given by heredity, by one attack or more of any disease, and by inoculation, and vaccination. The basis of this immunity is a specific vital resistance to the poisons of microbia, which has been, and can be acquired in another way than through actual conflict between the poisons, and the morphological units making up the tissues and organs of the body. The question comes up, how is this specific vital resistance acquired? I propose the general law in biology known as natural selection as the explanation, in the place of several unlike propositions and theories which have been suggested by European and American writers, to which I will refer simply to show their fallacies. To facilitate the explanation of the immunity from disease, acquired in this manner, let us see what are the factors of immunity, and what are the factors of natural selection.

THE FACTORS OF THE IMMUNITY FROM DISEASE.

When disease gets hold of a man, the observer will note a succession of causes and sequences, known as signs and symptoms, the sum of which, or their aggregate, he gives a name, and calls a special type of disease. If the patient is not destroyed, the observer notes that, at a time which is quite definite in duration, there is a "spontaneous" termination of the disease. It required several centuries for the medical mind to know and recognize the fact that there are statutes of limitation to the progress of disease. Physicians believed in "cures," rather than the law of the limitation of disease in time. The writer, twenty-five years ago, listened to two lectures in the medical department of the University of New York. One of them was by a very polished gentleman, who taught that disease terminated spontaneously and gave the proofs. The next hour a little bald-headed, shiny-pated man gave a lecture and denied this proposition altogether. He closed his lecture by raising his sharp little voice to a shriek, and declared that "thirty thousand people die in these United States every year for lack of proper treatment by calomel, antimony, bleeding, blisters and overfeeding." But the majority of the profession now believe that disease is subject to a definite law of limitation in time, and I will mark down as the first factor of immunity, which I am to explain by the law of natural selection, that the "spontaneous" termination of disease is due to *the law of limitation in time of all diseases.*

The next phenomenon that the observer of diseases will note is that, following the termination of disease, is an insusceptibility of the person for a time to further attacks of the same disease, if other things are equal: as may be verified by direct inoculation. Of course the duration of this immunity varies in different cases, but is probably never absent altogether. The observer will also note another fact, which is a variation of this fact, and which is that a person or animal may be subjected to a variety of any disease, by inoculation of a less virulent microbia or its poison, and the result will be a variety in the character of signs and symptoms of the disease, followed by a variety of the same laws of limitation and immunity in time. The general principle here learned is that by some means which depends on actual disease as the cause, the susceptible tissues acquire an immunity, for a time, from further attacks of the same disease agent; but this protection is limited to a certain duration of time, and, therefore, the second factor of immunity to be explained by natural selection is that immunity from disease is due to *a sequent variation on the part of the cells, which gives them a specific vital resistance; which variation in time, is again lost.*

But the careful observer will notice another correlative fact in disease which is that in all diseases the special disease has a very definite type, The signs and symptons are definite, more or less, and are characteristic. The action of the poison of the microbia appears to be limited to certain tissues or organs, as small-pox to the skin, and tubercle, generally, to the glandular organs.

Different species of microbia vary greatly in their power of invasion, and all are characterized by the specific character of their poison, the name of the tissues which resist them, and which cannot resist them. The rule is that each species has its "affinity" for certain tissues, but "affinity" here means that the disease agent simply attacks those tissues which have the least vital resistance. The severity of any disease, and the extent of morphological invasion is determined, directly, as the virulence of the microbia, and indirectly as the vital resistance of the different tissues and organs of the body.

As there is but one method by which tissues acquire a resistance to the poison of a microbe, which is through actual combat with the poison, and the sequent variation of the cells, and transmission of the variation, there is no way, therefore, of accounting for the facts that certain portions of the body are exempt in every disease, and the correlative fact that disease has a very definite character, except by application of this general law. When a man has scarlet fever and the poison of the germ is limited to his throat, skin, and kidneys, giving the disease a definite character, the reason is that his ancestry have so long fought this disease that all other tissues of the body have acquired, by variation and heredity, an exemption to the poison of the scarlet microbe. The third factor of immunity to be explained by natural selection is that in disease *certain tissues and organs are exempt.*

An animal, at least man, is said to be in many likenesses, an epitome of the universe. The philosophers say that a community may be likened to a man. So far as the present subject is concerned, these observations are true enough. Examining the relations of disease to a community, we find the likeness will hold and that the general inductions formed relating to immunity in the individual will apply to a whole community as well. The first induction or observed fact relating to immunity from disease that I have made in the individual is that disease terminates "spontaneously," by reason of the law of the limitation in time, of all diseases. When an epidemic invades a country,—for instance, yellow fever, or cholera, or other epidemic,—the disease ends "spontaneously," as a rule. There may, of course, be special causes aiding the termination, as there may be in the person, but the epidemic takes a regular course and after a certain definite duration it terminates. This fact is also to be explained by natural selection, and the same general principles which explain the fact in the person will also explain the same fact in relation to the community.

But it is noticeable that when an endemic or epidemic disease is present in any community that not all persons take the disease, not even if all are equally exposed and if all other things are equal. Disease infection, on such occasions, is diffused everywhere in houses, streets, water, soil, and air, yet many people escape. In fact, the larger number generally escape, under ordinary circumstances. This fact corresponds with the fact mentioned in relation to the person in any given disease. In such cases the disease has a definite character, depending upon the fact that in any given disease in any person certain tissues and organs are exempt, just as in the other cases certain persons and families may be exempt; and we will find that when natural selection explains this phenomenon in one case that it has explained it in the other.

It is, I think, necessary to show one more analogy in the relation of diseases to persons and communities, which is that whole communities, or nations, or countries, may gain protection or immunity from any given disease. History bears out this analogy, for the cessation of the great epidemics of the middle ages,—typhus, sweating sickness, scurvy, etc.,—declined as epidemics in Europe since there is a written history of sanitary science. It follows, therefore, that when natural selection has explained how an individual gains immunity from any given disease that it has also explained how a community has gained a like immunity.

There is one more very important factor of immunity, which is that it fades away, and the rule is that all immunity from disease which may be acquired by individuals, or by certain tissues and organs, or by certain portions of the public, or by whole communities, will, in time, be again lost. These facts must also be explained by natural selection.

PATHOGENIC MICROBIA IN RELATION TO NATURAL SELECTION.

The foundation, or fundamental law underlying disease is that living things have an appetite for each other, and are adapted to each other as a food supply; while the foundation or fundamental cause of wickedness and immorality is that the money and property of one person is as useful to one person as another; and the "struggle for existence" means a struggle for something to eat and a struggle for the wherewith to pay for it, if it must be paid for.

Looking over the classification of micro-organisms, it is found that they are divided into four tribes and that each of these tribes has one or more species, and their varieties which are pathogenic, and has other species which produce fermentation of organic matter which contains no nitrogen, and putrefaction of organic matter which does contain nitrogen. These are the broad distinctions which form the basis of physiological classification of the bacteria. Now, the general differentiation between the bacteria of fermentation and disease is that the first are nonpoisonous while the latter manufacture poisons, or are "virulent." Two questions will now be asked in this relation: Why are some species of bacteria virulent, and why are others "innocent?" There are two prominent methods of answering these questions,—one of them from the basis of accident, and the other from the basis of natural selection. One method says that pathogenic bacteria get into the body by accident, and the deficient supply of oxygen in the blood has the power of making them virulent, while natural selection takes note of the fact that living things have an appetite for each other and that when bacteria enter the body there is an organic purpose in the act, and that natural selection has made them virulent because they cannot consume living tissue, but must, in order to fulfill the law that living things must consume each other for a living, first kill their prey by a poison before consuming it. Looking over the whole field of living things, we find that they consume each other either alive or dead, or they kill each other first, either mechanically or by poisons.

As explained by natural selection, therefore, the reason why some species of bacteria are virulent and others not is simply because some subsist on food already dead while others destroy the life of their prey. Upon these facts rests the whole superstructure of the phenomena known as fermentation, putrefaction, and disease. Specializing this subject, we find that bacteria present varieties of the different species. While the species are characterized by differentiated poisons, the varieties are characterized by a less quantity of the same kind of poison. It is found that species may be placed in artificial conditions relating to their food supply and gradually lose their virulence, and that when the condition is reversed they gain virulence. There is but one method of accounting for this fact, from the standpoint of the general laws of biology which are verified to be true general laws, and this is that the reason why a culture of pathogenic or virulent microbia, when fed on a food that is dead, will lose their virulence is because they have no need of it; while if they are placed back, in a food medium which must be killed before eaten, they regain virulence because they are subject to the necessity and have the resources to perform the work.

Similarly, bacteria vary according to the resistance they meet to their poisons. Different species of animals differ in their resistance; hence it is that a variety may be produced in a species by a culture in an animal having less resistance. As found in nature, some varieties are produced in this manner, as the microbe of kine-pox, which is a variety of the microbe of small-pox.

There is a disturbing factor, however, in this problem, which is that artificial or modified conditions may destroy the reproductive power of bacteria, which would have the same effect upon the given amount of virulence. Various experimenters give different reasons for their methods of the production of varieties of microbia having less virulence. These methods are said to "attenuate," "dilute," or "modify" the species of microbia. Certain ambitious men say that this variation is caused by a varying supply of oxygen. If this can be proven, it will destroy natural selection as a biological law, but as a culture of bacteria cannot be made except in a food medium which is dead, with or without oxygen, this factor cannot be excluded from the experiment, and hence it is impossible to prove the oxygen relation. The oxygen suggestion is not a cause but a sequence in the problem. It is true that the bacteria are distinguished by their power of living in little or much oxygen, but oxygen existed before there were any bacteria, and therefore if bacteria became adapted to live in media having little oxygen, and such media also required virulence, the bacteria would have to be adapted by natural selection to live on little oxygen and live food at the same time.

The blood of animals contains little oxygen, while dead matter is generally exposed to the atmosphere, hence the bacteria, living in blood and on living food, have acquired the power of doing both of these things; while bacteria which live on dead food, in the atmosphere, are likewise adapted to these conditions, or they would never have survived as a species; but to say that the supply of oxygen is a cause in either of these conditions is simply to put the cart before the horse, and say that carts were made before horses, and to declare that a horse is not a horse unless hitched to a cart, and that a cart is not a cart unless hitched to a horse.

There is, however, in organic nature or biology, a certain relation between associated phenomena and their sequences. We may say that natural selection preserved the horse, as a species, from his natural enemies by giving the horse his speed. The horse acquired his speed by running away from his enemies. The horse had to live where there was grass, and at the same time, by reason of enemies, was obliged to develop speed. The microbia, if they adapted themselves to live on the tissues, were also obliged to adapt themthemselves to the conditions surrounding the tissues, and it so happens that one of these conditions is, and always was, a very small supply of oxygen.

(To be concluded in November.)

THE ANNALS OF HYGIENE.
THE OFFICIAL ORGAN OF THE
State Board of Health of Pennsylvania.
PUBLISHED MONTHLY.
Subscription, two dollars ($2.00) a year in advance.
Address all communications to
JOSEPH F. EDWARDS, M.D.,
224 S. 16th St., Philadelphia, Pa.

MEMBERS OF THE BOARD.
EDWARD WM. GERMER, M.D., Erie, President.
PEMBERTON DUDLEY, M.D., Philadelphia.
DAVID ENGLEMAN, M.D., Easton.
J. F. EDWARDS, M.D., Philadelphia.
RUDOLPH HERING, C.E., Philadelphia.
J. H. McCLELLAND, M.D., Pittsburgh.
BENJAMIN LEE, A.M,, M.D., Secretary and Executive Officer, 1532 Pine St., Philadelphia.

Editorial.

DR. SHAKESPEARE'S REPORT ON CHOLERA.

It will be remembered that about one year ago, Dr. E. O. Shakespeare, of this city was commissioned by President Cleveland to go out, as the special envoy from the United States, to the cholera infected districts of Europe and Asia to make investigations in relation to this terrible disease. Dr. Shakespeare has completed his mission and returned to this city two weeks ago with a vast amount of interesting and most important matter to report. We are glad to say that we hope and expect to commence the *exclusive* publication of this report in "THE ANNALS OF HYGIENE," in either the November or December issue. We will be obliged to add many extra pages to each number for six months or a year in order to make room for this valuable report, without interfering with the regular matter in our journal. This we will do, however, without any extra charge, so that all who will remit two dollars for a year's subscription, will receive, in addition to the regular contents of the journal, the full text of this most valuable report of Dr. Shakespeare.

THE PHYSICIAN AS A SANITARIAN.

We would most earnestly urge all who receive a sample copy of this journal to read Dr. Harvey's paper on page 278. Certainly, he, who would call himself and would desire to be called an *educated* physician, must, of necessity, be well versed in the doctrines of hygiene. Yet, how few physicians really know anything about it. When the physician who is attending the cases of typhoid fever in Manayunk, referred to on page 301, was asked whether he did not think it was wrong to have the privy so near the water well, replied "No, that it made no difference; that it had nothing to do with the sickness." Unquestionably, there are plenty of physicians who know no more about hygiene than does this one. Every respectable physician realizes that he *must* provide himself with a good medical journal, and we would unhesitatingly say that the same need exists for him to regularly receive and *read* a good sanitary journal.

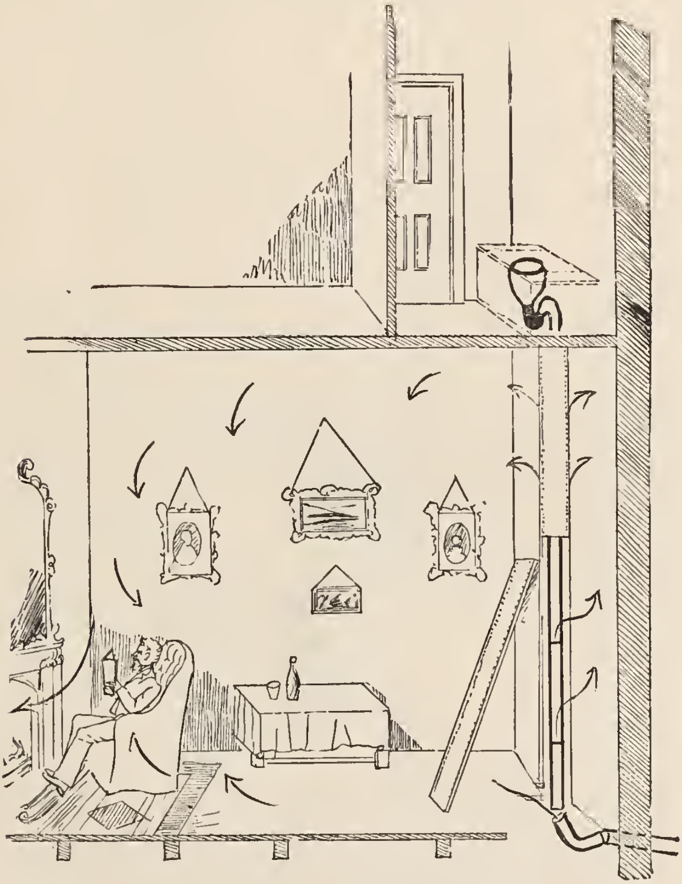
OUR ILLUSTRATIONS.

"In one ear and out of the other" is a very old but a very true saying. But when we appeal to the mind through the eye, it is a very different matter. That which is photographed upon the retina is much more lasting than that which is impressed upon the tympanum. Realizing this fact, we have decided to call illustrations to our aid to enable us to make clear the lessons of hygiene that we preach. In each number we will have different illustrations, and we trust that this important step will be appreciated by those whom we desire to become subscribers.

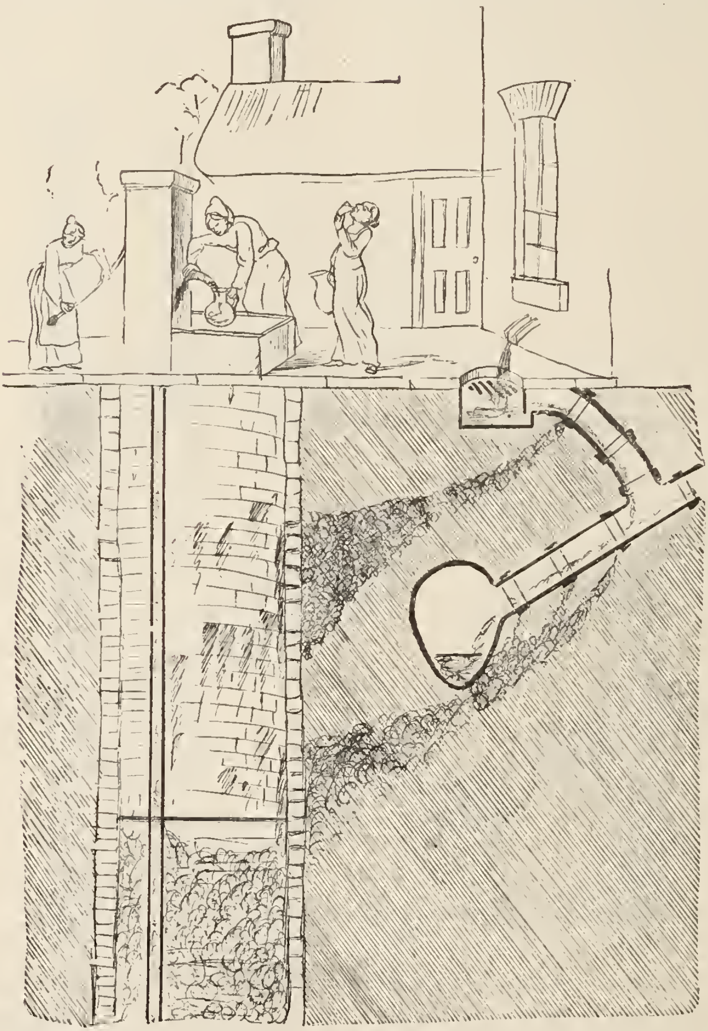
Notes and Comments.

WHY MR. MANNING IS NOT SECRETARY OF THE TREASURY.

The gentleman whom we see in this drawing was a medical student, who was constantly suffering from sore-throat. He was an intelligent man, and he therefore knew that there must always be a *cause* for every *effect*. He knew that defective drainage will cause sore throat, and he set about to learn wherein his drainage was defective. A concealed soil-pipe was found in the wall of his study, perforated at several points, and ending below the floor in a broken junction with the drain. These defects were remedied, and *he had no more sore throat.*



In the daily papers of the 23d of last month, it is stated that some plumbers who were at work on the plumbing of the room in the Treasury Building, in which Secretary Manning was accustomed to spend many hours daily, made the discovery that the soil pipes from this room passed directly *untrapped* into the sewer. Of course we do not say that sewer gases will cause apoplexy, but we do say that the almost constant inhalation of sewer gases will so vitiate and depress the system as to materially retard the recovery from any traumatism or shock, whether it be caused by apoplexy or anything else. Therefore we can safely say (strange as it may seem) that Mr. Manning is not now actively at the head of the Treasury Department, because the *drain pipes in his private office were not securely trapped.* Those of our readers who think that Mr. Manning made an excellent seerctary, will be able to understand how this sanitary neglect in a little room in Washington has unfortunately reacted upon the whole country. In our November issue we will give a drawing exactly illustrating the defects in Mr. Manning's office.



THE CONTAMINATION OF WELLS.

Colonel William Ludlow, late Chief Engineer of the Philadelphia Water Department, has said that there is not a well in this city, the water of which is fit to drink. The above drawing will explain why. We have here a profile view of a sewer, into which house drains empty. We see that the joints of the drains are leaky, and the dark shading shows us the sewage percolating through the earth into the water well, while the three women above are taking back into their bodies that which but a short time before they have discarded as excrementitious. The numerous privy vaults (relics of the dark ages) and leaky sewers will really make the water of almost any well in a large city unwholesome.

In the country districts the same danger is to be apprehended from the proximity of the privy to the water well.

At the present time there are two cases of so-called Typhoid Fever in Manayunk (Pa). The victims drank water from a well, about twelve feet deep, within twelve feet of which was a privy well, located on higher ground than the water well. Of course they *drank sewage*, and of course they were sick.

For the remedy. Let us remember that a well will drain an area, with a diameter equal to twice its depth. Therefore, a well twelve feet deep will drain an area the diameter of which is twenty-four feet, that is to say that it will drain the surrounding soil for twelve feet in every direction. Obviously then the privy should be more than the depth of the well away from it, and more than this again, if it is proposed to place it on a *higher* level, which, however, should never be done. The well should be lined inside *thoroughly* with mortar, so that percolation cannot occur between the crevices of the bricks, as is seen in the drawing, and it should be well covered, so that *surface* drainage cannot get into it, for you want to drink water that has come into the well from the bottom, after it has been purified by filtration through the earth. Thus then these are the precautions to be observed in locating and building your well in the country. How about the city? *Well water* in the city should never be used; the sources of contamination are too numerous and too hidden to be avoided.

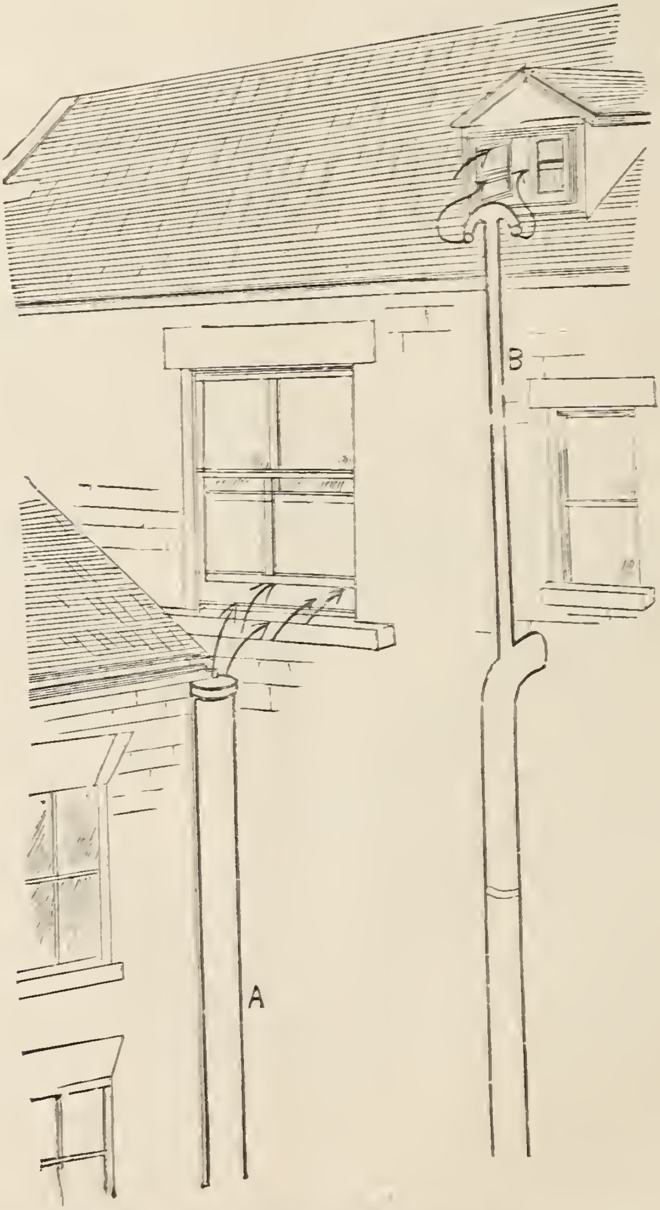
DYSPEPSIA.

It has been said, with some degree of justice, that we are a nation of dyspeptics; certainly dyspepsia is very prevalent among the busy, anxious residents of our country, whose minds are so absorbed with the passion of accumulating money and whose time is so consumed thereby, that meals are hurriedly eaten, food swallowed unchewed, and, of course, dyspepsia results. Were we all to live in accordance with the teachings of hygiene, dyspepsia would be unknown. But, as we do not so live, we are compelled to seek for remedies for this distressing complaint, and among such remedies we find pre-eminently at the head of the list Jensen's Pepsine, the advertisement of which appears in this issue. We have repeatedly used it, and we can recommend it from personal experience.

HOW SEWER GAS GETS INTO THE HOUSE.

Anyone who walks our thoroughfares with his eyes heaven-ward, will repeatedly observe the sanitary defect figured above. The pipe to carry rain water from the roof (Fig. A) is carried down into the sewer, (a very good provision, as it does not then splash the water over the feet of every passer-by,) but its upper end opens just underneath a neighbor's bed-room window, and, in warm weather, when this window is open, foul gases from the sewer are continually poisoning the atmosphere of his house.

The remedy. Carry the pipe higher up, and do not allow its open end to be in proximity to your own or your neighbor's windows.



At B, we see a soil pipe, the owner of which had never subscribed to "*The Annals of Hygiene*," because he thought he knew all about hygiene. He did know enough to realize that his soil-pipe ought to be ventilated, but see how he went about it. He makes his ventilating pipe only about ⅓ as large as his soil pipe, so that while ⅓ of the sewer gases travelling up the soil-pipe, find their way into the ventilating pipes, the other two-thirds are compelled to go somewhere else, presumably, a portion of them, back into his house. Again he has so arranged affairs that when the one-third of the gases does escape, it is to go directly into his attic, to be breathed by his cook all night, and then he wonders in the morning why his chops are scorched, and his coffee unfit to drink. He does not know that his cook is nearly blind with headache, caused by an all-nights' inhalation of sewer gases. We will send him a copy of this journal, and we are sure that when he sees this picture, he will substitute a ventilating pipe as large as the soil-pipe, and he will carry it well up above his attic window. If he does, we can promise him a much more palatable breakfast.

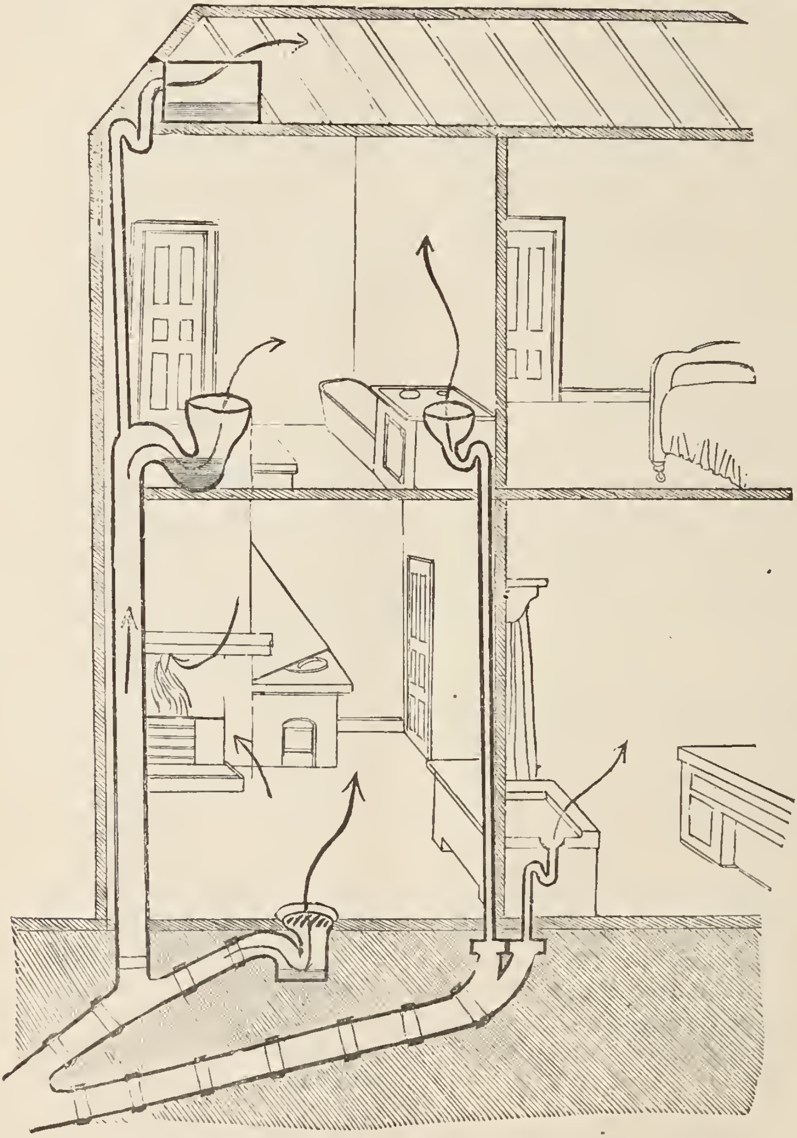
MEDICAL AND SURGICAL DIRECTORY OF THE UNITED STATES.

A most valuable work is this which has been recently published by Messrs. R. L. Polk & Co., of Detroit, Mich. It contains the names and addresses of some 80,000 physicians in this country, and it is so arranged that the standing of any physician can be gleaned from it. Its value is so self-evident that we not dilate upon it. It is the most reliable medical directory that has ever been published, and we are sure that no one will ever regret the expenditure of the seven dollars necessary to secure a copy.

WHY TYPHOID FEVER PREVAILS IN THE FALL.

It is a well known fact that Typhoid Fever is usually prevalent in the fall of the year. When those who have been away all summer return to their city mansions, some one of the family is taken ill with typhoid fever, and the blame is laid upon the place in which the summer has been passed. This is erroneous, and the above drawing will show you why these people have the fever. Supposing that we are writing for those who know nothing about hygiene, we will premise that a "trap" is the U shaped arrangement in the course of a pipe, as seen on all the pipes in the drawing. Of course, as the water passes along the pipes it is arrested in this *trap*, as shown by the dark shading in the trap to the right. This water serves as a barrier, and the gases from the sewer cannot return. But, when the house has been empty all summer, the water evaporates from the traps, as is well shown in the drawing, and the gases generated in the sewers and along the pipes have free access to the house. If it should happen that there has been a case of Typhoid Fever in any house, (now matter how remote it may be from your house) that has connections with the same sewer that you have, you can readily understand how the germs of this disease can find easy access to your house.

The remedy. In the first place always have a lid to your closet and always keep it closed. In the second place, always keep the stoppers in your basin and bath tub outlets, and plug up your overflow outlets before going away for the summer. In the third place, let the water run through your pipes, at intervals, during the summer, so that they will always be full; or, in the fourth place, if you cannot carry out the third provision, and have reason to suspect that the water in your traps has evaporated, then disinfect your house, as directed on page 208 of this journal, before you occupy it. This may cause you some little trouble, but, it will be very much less annoying than a funeral. The careful housewife will see to it that her wash tubs have water in them while she is away in summer, because, otherwise, she knows that they will fall apart, and she must buy new ones in the fall. Shall she then neglect to have water in her traps, when she now knows that this neglect may mean the death of herself or some one dear to her. Do not say that you have neglected these precautions for years, yet have never been sick. You might as well say that because you never have died, that is proof that you are not going to die. You cannot tell when your turn may come, and it behooves you to accept good advice and act upon it.



The Annals of Hygiene.

Vol. I. PHILADELPHIA, NOVEMBER 1, 1886. No. 11.

Communications.

OVERWORK AND SANITATION IN THE PUBLIC SCHOOLS OF PHILADELPHIA, WITH REMARKS ON THE INFLUENCE OF OVERWORK IN THE PRODUCTION OF NERVOUS DISEASES AND INSANITY.*

BY CHARLES K. MILLS, M.D.,

President of the American Neurological Association, etc.

[Concluded from October issue.]

The influence of overwork in the production of nervous diseases and insanity is, on the one hand, sometimes overrated, and, on the other, frequently overlooked. It has always been a favorite subject with tyros in medicine and social science, but it is one which requires large practical experience and wide knowledge of disease in order that it may be coped with properly.

A good way to lead up to an understanding of the disastrous effects of mental overwork upon the mind and nervous system is by first considering those tangible and easily recognized nervous affections which are the result of special forms of physical overwork. Such a consideration will show that between the effects of physical and mental overwork the difference is apparent rather than real. It is a common experience to observe certain physical effects, such as general exhaustion, tremor, temporary paresis, and, more rarely, forms of spasm, result from physical over-effort. George Vivian Poore,* and others, have well designated certain affections as "fatigue diseases." These disorders are those which have been described under various names, such as the cramp, spasm, or palsy of writers, pianists, telegraphers, typewriters, blacksmiths, tailors, milkers, weavers, etc., and are also sometimes considered under the general designation of "artisans' diseases." What is the clinical history of such cases? How do they arise, and how progress? In general terms, they are the result of interference with that "rhythmic nutrition" which Sir James Paget has declared to be one of the great laws of nature, a law the violation of which entails pain, disease, and, it may be, death. It is not work, physical or mental, which leads to these dire results, but overwork, in the strictest sense of the term. Work, within normal limits, leads to normal fatigue, which, in its turn, calls for rest, in order that recuperation may occur; overwork leads to abnormal fatigue, and, at its worst, destroys even the inclination to that repose which helps to carry out this great law of rhythmic nutrition.

---

* A lecture delivered before the Teachers' Institute of Philadelphia, at the Girls' Normal School, December 11, 1885, and remarks made at the State Sanitary Convention held in Philadelphia, May 12, 13, and 14, 1886.

* Electricity in Medicine and Surgery.

In these fatigue disorders it is the monotonous, everlasting repetition of the same forms and processes of work which brings about the ill results. Not only are the muscles and nerves concerned in such apparently simple, but really complicated physiological acts as writing, telegraphing, and the like, exhausted beyond recuperation, but the nerve centres, spinal and cerebral, which control and harmonize these acts, are themselves eventually exhausted, and, if the cause continues, they may be destroyed. The evident conditions in these cases, what the doctor calls the "symptoms," are the pain, the cramp or spasm, the tremor, the paresis, the incoördinate movements, the flag in attention, and the undue emotionality, which are seen to be present, or of which the patients complain. The hidden condition in these cases, what the doctor calls the "pathology," is the change, impalpable and not yet demonstrable it may be, of the peripheral and central neuro-muscular apparatus which has been brought about by its over use. The weight of recent opinion is undoubtedly in favor of the view that the seat of the greatest pathological change in these cases is in the central nervous system; doubtless in some of them it is in the gray matter of the brain cortex.

Over physical fatigue of muscle, of eye, ear, tactile papilla, etc., then, means exhaustion of nerve-centres, spinal and cerebral as well. One of the clearest truths of modern cerebral physiology, one of the most widely known results of investigation into cerebral localization, bears out this truth. Every isolated muscular action, every action the result of the movement of a group of muscles, has its record in the cerebral cortex: each muscle or muscular group has there its centre or governing spot. The brain acts in levels, in areas, in zones, in centres, or there is no truth in the now multitudinous observations and experiments which go to prove the doctrine of localization. Motor and sensory localization, at least, may be regarded as established. Differences of opinion may exist and will probably continue to exist, as to the exact nature of this localization—whether in the brain we have a mere loosely linked confederation, or whether these localizations are simply centralizations of certain vibrations, etc.,—but no doubt can remain as to the truth of some method of localization. Certain areas of the brain are destroyed, and certain muscles are palsied and eventually degenerate; a limb is amputated, or its power or size destroyed, by a spinal or peripheral disease, and years after, certain brain centres ars found wasted or obliterated. A man like Gambetta, distinguished for mental grasp and particularly for eloquence and fluent speech, is found with a certain convolution doubly developed. Excessive muscular action is shown by Lombard, Amidon, and others, to result in increase of local temperature in certain regions of the cranial vault. From both aspects of the question is demonstrated the possibility of central nervous effects from peripheral causes.

In a case which recently came under my observation, through the kindness of a brother practitioner, the fact that even higher volitional centres may be demonstrably exhausted by over-exertion, was beautifully illustrated. The man was a singer and actor in a popular troupe. In order better to counterfeit the character which it was his duty to represent on the boards, he was in the habit, nightly, for many minutes at a time, of frightftlly contorting his face and eyes, accomplishing a strikingly effective artistic feat. Both eyes were made to strongly converge, the forehead at the same time, was corrugated, and the muscles of the cheek were drawn into special positions. One day he suddenly saw double. His double vision persisted and became more annoying, and it was soon discovered that he had paresis of the external muscle of one eye; some pain accompanying the trouble. That the condition was really due to exhaustion of cerebral centres appeared to be demonstrated by the fact that he could, by great effort, for a moment or two cause the affected eye to rotate outwards beyond the medium line, although ordinarily this could not be done.

At first sight these considerations and illustrations may seem to have little to do with the question of mental overwork and its consequences; but such is not the case. It is in consideration of facts of this kind that the true philosophy of neurasthenia or the philosophy of a true neurasthenia becomes evident. If motor activities are governed by definite cerebral centres, which can be exhausted, and whose nutrition can permanently be arrested or impaired, mental activity, abnormally exerted, can certainly lead to impairment of cerebral centres. Physical overwork means cerebration, as well as mental overwork—both have their brain reaction.

Not a few of the organic spinal affections which pass under the name of sclerosis are produced or determined by over physical exertion. Even when syphilis, alcohol, or sexual abuses have played a part, sometimes physical overwork has been the last factor in the production of the diseases. During or succeeding some great military campaigns, many spinal disorders have resulted, because of the extraordinary fatigue of long marches and unusual exertion. A number of cases of locomotor ataxia, not due to syphilis, alcohol or exposure, occurred among soldiers on both sides during our late civil war. It is well known to electro-physiologists and electro-thereapeutists that a muscle can be faradized or galvanized, until both it and its nervous centres are so thoroughly exhausted that almost total paralysis occurs. That cerebral centres for the special senses can be exhausted by over-use of the organs of special sense, has been shown by numerous clinical facts.

Let me say a few special words to those adults who are over-working themselves almost daily, often both unconsciously and unneecessarily. In the first place, while it may seem almost absurd to repeat the trite dictum that they should do less work, this is really the first truth to be learned.

Individuals are often forced into such positions that they cannot, at given times, do less than the amount of work that is called for in a certain number of hours but it is the prophylaxis of over-work that should receive their careful thought. They should not push the ox into the ditch, in order to compel themselves to pull it out on Sunday; they should provide from day to day, from week to week, and even from season to season, against the possibility of being thrown into positions where temporary overwork becomes absolutely necessary. Their work should be more carefully anticipated.

I know well that different vocations in life will make great differences as to the possibillity of more or less absolute systematization, but something can be done in this respect, even by those who belong to the most taxing and irregular of professions.

An important practical point—one too often overlooked by overworked men—is the great value of brief intervals of repose during working hours. These can often be had, even by those who think it least possible. The recumbent position, with the general physical and sometimes mental relaxation which it brings, even without sleep, often serves to knit together again the tired faculties. Where the habit of snatching these intervals of sleep can be acquired, it is of very great benefit. It would be far better for those who are overworked to resort to these methods of recuperation, rather than to stimulants. Stimulants are always a dangerous ally when resorted to during the progress of crowding tasks.

Those who are forced to do much work in a short time, should learn to avail themselves of all possible auxiliaries to lighten labor and save time. The day has gone by when the busy statesman, or novelist, or lawyer, or physician, can afford to spend tedious hours in doing the mechanical work of writing speeches, novels, opinions, or professional experience. Stenographers and type-writers have become invaluable and indispensable auxiliaries to men of many labors. A word of caution is here necessary, however; there is a possible danger that with these auxiliaries which make the achievements within reach much greater, the ambitious, hard-worked individual will set to himself far greater tasks than he would under other circumstances.

Some system of medical superintendence in our public schools should be adopted. Much good could, undoubtedly, be accomplished in this way. In some foreign cities, and, possibly, in some municipalities in this country, systematic medical inspection and superintendency of schools has been adopted. Crichton-Browne has recommended such superintendence of the London schools in consequence of the personal investigation which he made into a number of the elementary schools of London. It is not necessary that there should be a cumbrous and costly system of medical inspection and superintendency. In connection with the general superintendency of our schools, one or more medical men might be employed to systematically inspect and report upon the sanitary condition of school buildings and surroundings, and upon the health of the pupils. It may be a question as to how such positions should be filled, or in connection with what department of city government they should be held. Some might consider it best to have such medical superintendence in connection with the Municipal Board of Health, but as our city departments are at present constituted it would probably be better for the medical superintendents or inspectors to hold the position of assistant superintendents, or, at least, a position of similar rank under the school department.

With a thorough system of medical superintendence of the public schools in active operation, the most serious evils in school life and in work might be avoided or remedied. Such questions as ventilation, lighting, seating, drainage, vaccination, the presence of children in whose families contagious disease prevails, would come under the jurisdiction of such medical inspector or superintendent. Special investigations could also be made or directed, from time to time, with reference to the number of studies, hours of home work, amount of recreation and sleep, and the effect of all these upon the health of children in certain schools or districts. Reports upon these matters could thus be systematically made to the superintendent of the public schools.

Not only could much be done for the avoidance of disease and improvement of the health of school children, by a well-directed medical superintendency, but much information of the greatest scientific value could be obtained, and put into shape for general usefulness, by a system of health registers in schools. Such a register, says Crichton-Browne, who strongly recommends it, could be so arranged as to supply a clear and complete history of the vital and educational progress of each pupil as long as he or she remains in school. "But more valuable and trustworthy than even a medical report," says this writer, "would be a register of height, weight, head and chest girth of the children, were such a record kept in every school. A log-book of this kind would help us much in doing justice to the teachers and children alike, and in putting a stop to over-pressure. At present the only basis of classification of school children recognized is the age difference, no allowance being made for health, or development, or radical differences. But no one can walk through a few schools in different districts of London, and with different rates of payment, without being impressed with the wide interval of health and development that separates children in the best from those in the worst. The latter are puny, dwarfish, pale and feeble, when compared with the former; and to judge a teacher who is laboring amongst them by the same standard that is applied to another whose lot is cast amongst larger limbed and larger headed children, with richer blood and more constitutional vigor, is to do him a manifest injustice and incite to over-pressure. But injustice of this kind would vanish at the appearance of the tape measure, for the average height and weight and head and chest circumference of the children would supply just the check which is required on the results of examination."

If school children are overworked, it may be to some extent the fault of their parents. The parents should look more to the school interests of their children. I recently asked the principal of a grammar school whether the parents visited the school. He replied, "Oh, they visit the school, at least some of them do." "When do they visit the school?" I inquired. "They usually visit the school just after examination week, to see why John or Mary has not been promoted. They make the teacher's life miserable for some time after examinations; but they seldom visit him at any other season."

For certain special health matters, parents are largely responsible. I am credibly informed that a large number of the pupils of the Girls' Normal School are found in their places each morning without having had any breakfast. It stands to reason that a child will suffer from nervousness, headache, eye strain, etc.,—ills which come from a run-down state of the system,—if such a state of affairs is allowed. A diet of doughnuts is not the best for either mental or physical development; but I can affirm without fear of contradiction, that in the Girls' Normal School of Philadelphia doughnuts are the most popular luncheon in the intervals between the different sessions. When I was a boy a diet of cheese-cakes was the favorite; but as I had plenty of active exercise in my journey of four miles to and from my home, I did not suffer as much as I otherwise should have done. Parents should know what their children eat at school as well as at home; arrangements should be made in the schools in which long hours prevail by which the children can break their fasts with healthful food during the day.

Parents should see to it that their girls are not driven too hard during the menstrual periods. They should take care that both boys and girls should not study too hard at certain diurnal periods, for instance, immediately before bedtime. It is well known that hard study immediately before retiring to rest will do much towards injuring the health and preventing sleep. Great mental application, continued until too near the time of retiring, or beyond the usual hour, keeps the blood within the head at the time when it should leave it.

The parents of the pupils constitute the great people, politically, of Philadelphia, and these parents should arise in their might and uphold those who are using their strongest and noblest efforts to promote the interests of our school system. They should arise and protest against bad school buildings and insufficient appropriations for educational purposes. They should see to it that those faults which could be remedied with money are removed.

Many teachers are overworked. I believe also that they are underpaid. The real overwork in the case of many of the teachers, and the real injury to health, seems to me to be due rather to the methods of working than to the actual amount of ground that is covered. Ill-health of teachers is also due to sanitary defects. Teachers are compelled to live from nine o'clock in the morning till four o'clock in the afternoon, nearly all the time in ill ventilated rooms. They are compelled in some cases to pursue certain methods of teaching which are unnatural, or for which they are untrained. They are bound to suffer sooner or later. Of the graded schools the complaint has been made to me that the work is harder for the teachers than under the old system. I have taken care to observe the methods of teaching in a number of schools in different sections, working under the new system. Different schools differ very much. I believe that the supposed overwork from the new method of teaching, is due in many cases to the fact that the teachers have not yet accustomed themselves to the new method.

A few years ago the system of seating, and of lighting with reference to seating, was extremely bad. This has been largely corrected, owing to the attention called to the subject by Mr. A. M. Spangler, of the Board of Education, and Dr. S. D. Risley, the distinguished ophthalmologist. Dr. Risley a few years ago made a series of investigations, which have been published,* into the condition of the eyes of the public school children of Philadelphia, which I believe resulted in great good. He called attention to the high percentage of school children suffering from weakness of sight of various kinds, and also discussed the cause of and remedies for the evil.†

---

* Weak Eyes in the Public Schools of Philadelphia. The Report of the Committee on Examination of the Eyes of the Children in the Public Schools of Philadelphia. By S. D. Risley, A. M., M. D. Extracted from the Transactions of the Medical Society of the State of Pennsylvania for 1881.

† This last paragraph we omitted by mistake from page 275 of the October issue.

THE HYGIENE OF THE MOUTH.

BY CHARLES J. ESSIG, M.D., D.D.S., OF PHILADELPHIA.

Professor of Mechanical Dentistry and Metallurgy in the University of Pennsylvania.

It has been said that we are a nation of dyspeptics, and the belief is gaining that we are rapidly becoming toothless, so rapidly that unless some change is effected in our manner of life that event in a few more generations will overtake us. Be that as it may, the belief so often expressed that the teeth of Americans are greatly inferior to those of the inhabitants of other countries has ceased to be a mere matter of conjecture and may be stated as a fact.

In the papers on this subject which have been read and discussed before the different dental societies of the country, many interesting facts and theories have been presented, and from the data thus collected it may be assumed that decay of the teeth depends upon predisposing and exciting causes, existing through the environments of our modern civilization.

It has been thought by many that climatic influences have much to do with depriving so many Americans of their organs of mastication, but this theory can scarcely hold when it is remembered that we have in the United States nearly every variety of climate of the whole world, and it has not been demonstrated that any marked difference exists in the quality of the teeth of the inhabitants of different sections.

More recently many dentists believed that one great cause for the remarkable deterioration of the teeth of Americans was to be found in the bolting of breadstuffs by which nearly all of the portion containing lime is removed.

But it is now pretty generally accepted that so far as any deficiency of the lime constituent in the teeth is concerned, we may look for the cause in defective digestive and assimilative powers, and this opinion receives confirmation in the knowledge that persons living in limestone countries, where the waters are strongly impregnated with that material, suffer no less from decay of the teeth than those living in regions where lime is absent in the natural formations, and where the waters bear no trace of it.

But while climate and locality do not seem to greatly influence the quality of the teeth, food and manner of living undoubtedly do, and only through special application of general principles to this subject can anything like a reasonable solution of the problem of decay or premature loss of the teeth be arrived at, the influence of environment bearing upon and modifying the development of the teeth and maxillæ, as well as the secretions of the mouth, must be recognized in the hereditary retrogression of the teeth and contiguous parts, now so common in the United States.

Decayed teeth were probably never found in the mouths of wild animals, and but rarely in domestic animals. The wild aboriginies of America are seldom if ever so affected, and the teeth of the field hands amongst the Southern negroes are far above the average of American dentures. The peasantry of Europe are nearly exempt from bad teeth, but they labor hard in the open air and subsist on plain, nutritious diet, consisting of vegetables, bread made of unbolted flours, cheese, milk, and but little animal food.

The same can be said of the inhabitants of Asia and Africa, who live almost exclusively an out-door life, and whose diet is of the simplest character, consisting of rice and kindred cereals and fruits, and little or no animal food, but in the United States we have no similar class, and it has been truly said that we have no peasantry. The kind and quality of food of Americans and the methods of preparing it amongst rich and poor, both in the country and in cities, is nearly the same. The native-born American despises labor, and his predilections incline him to luxurious living.

Any one who feels interest enough in this subject to inquire and observe, or collect easily accessible data bearing upon it, will probably learn that those who sustain themselves by hard bodily labor in the open air and live abstemiously possess unimpaired digestive and assimilative powers and have almost complete immunity from decayed teeth, while any departure from hygienic laws is sure to be followed by physical deterioration and predisposition to dental caries.

We cannot, therefore, regard cleanliness of the teeth as fulfilling all the requirements of dental hygiene, yet it must be born in mind that the exciting cause of caries is acids, due to chemical decomposition of food remaining between and around the necks of the teeth, or resulting from morbid conditions of the stomach and salivary glands, and these acids, like all acids in the nascent state, are most active at the moment of liberation, and attack the immediate locality where they are liberated. It will at once be seen that to reduce the liability to decay to the minimum the tooth-brush and all other available means of thoroughly cleansing the teeth should be faithfully employed.

The extent to which predisposition to decay exists amongst people varies greatly. Almost any dentist can point to a few families in his practice whose teeth are so frail as to require frequent examination and constant attention, and even then decay will recur in spite of every effort to prevent it.

The theory of decay now pretty generally accepted, teaches that after the penetration of the enamel by the action of acids evolved as a sequence of decomposition of particles of food, bacterial germs from the atmosphere or other sources, enter the cavities and there propagate in large numbers; that they exude an acid poison destructive to the mineral element composing the tissue of the organ, and that by crowding into the tubuli they break down the intervening walls, the animal portion thus becoming freed from its combination, is devoured by bacteria as sustenance.

While the active participation in the process of decay of micro-organisms has yet not been demonstrated, that part of the theory which regards acids as the exciting cause has been fully confirmed by Miller of Berlin. Prof. Hesse of Leipsig contributes some interesting information on the subject which if accurate is in accordance with the result of Miller's experiments. He found in the Dental Institute of Leipsig amongst the laboring classes,* the most deplorable condition of the teeth of bakers, which were affected with caries of a soft and rapidly progressive character, which he considers to be in etiological connection with the calling of the baker, and proof of the correctness of Miller's theory of the presence about the teeth of a destructive acid, primarily due to fermentation of carbo-hydrates.

---

* It is not believed that the teeth of the inhabitants of towns and cities in Europe are greatly superior in quality to the teeth of Americans, but those living in the rural districts scarcely know anything about decayed teeth.

As long as the baker works he inhales flour dust, and in the absence of the necessary attention and cleanliness the work of destruction goes steadily on.

There are also other morbid conditions of the teeth and contiguous parts more serious in character than decay, because less amenable to treatment, manifesting the same variable degrees of inherited predisposition, and their development is believed to depend upon kindred exciting causes, but the consideration of these would carry us into the domain of dental pathology, and it is therefore sufficient to say that their prophylactic and subsequent treatment is governed largely by hygienic laws.

The mouth and teeth suffer unusually when there is any great departure from a normal standard of health, the sufferings of chronic invalids are often increased by morbid conditions of the teeth and gums, occuring as a sequence to ill health. An instance of this is given in Dr. Antrommarchi's "Last moments of Napoleon;" it is recorded that on Christmas day 1820 he prevailed on Napoleon to allow him to examine his teeth, he found great deposits of salivary calculous, which had insinuated itself between the teeth, the gums and the sockets, until the former were almost entirely detached, the four inferior incisors being entirely isolated. The deposit together with the loose teeth were removed, after which he states that "Napoleon's rest at night, which had been much disturbed, became good, and from that time to his death, on May 5th, 1821, he was not further troubled with head-ache or sleeplessness."

THE HYGIENE OF NATURE OR THE RELATION OF IMMUNITY FROM DISEASE TO NATURAL SELECTION.

BY ROMAINE J. CURTISS, M.D., OF JOLIET, ILL.,

Professor of Hygiene in the College of Physicians and Surgeons, of Chicago, Illinois.

(Concluded from October issue.)

THE FACTORS OF NATURAL SELECTION AND THEIR RELATION TO IMMUNITY AND TO THE PATHOGENIC BACTERIA.

The factors of natural selection are variation, herditary transmission, and sexual selection and atavism. These factors explain the origin of species, and other phenomena very much as the law of gravitation explains physics and astronomy. One would think, however, to read the results of the experimental researches of many men in the science of biology, that there never lived a man whose name was Charles Darwin, or that the law of natural selection has been discovered. I will show, as clearly as possible, the relation of these factors of natural selection to the factors of the immunity from disease as I have enumerated them.

VARIATION OR VARIABILITY.

The meaning of variability is that from various causes—as use, disease, exercise, conflict in the struggle for life with the physical environment or personal enemies, that living things and their morphological elements undergo a change in their function, or structure, thus the skin in the palm of the hand will undergo variation from conflict with an ax helve, a blacksmith's biceps will show a variation from use or disuse. An Esquimaux baby can be given a bath in a snow-bank without danger, with the thermometer at 30°.

Applying these principles to tissues,

and to specific methods of conflict to get near our special subject, we find that the tissue cells of different organs acquire a tolerance to drugs by actual resistance to their poisonous action. There is no other inference why this fact is true, than that the cells, by this conflict, undergo a variation in structure, or perhaps their molecular arrangement, which gives them a specific character of vital resistance, represented by the different kinds of poisons. This principle, in part, accounts for the first factor of immunity from disease, which is the *law of the limitation in time of the diseases.*

When pathogenic microbia enter the body, the method by which they do so is not an accident in any sense, but is a method determined by natural selection. These microbia are trained to live on little or no oxygen, and they manufacture a poison in order that they may destroy the life of the cells. The poison destroys the cells, and they become food for the parasite, which originates the poison. The phenomena on the other side of the question are resultants of the action of a poison resisted by the vital or physiological forces; these resultants being known as signs and symptoms, which, taken in their aggregate, together with all antecedent facts relating to the science of the microbia, constitute the science of any given disease.

But not all cells are destroyed even among those which are classed as nonresistant to any particular poison. Many survive, but they undergo a variation, the character of which is that they acquire a specific vital resistance to the poison. As like begets like in reproduction, these cells transmit this variation to their progeny; but this brings us to the second factor of natural selection with the addition of which we are prepared to explain all of the phenomena of immunity, except the subsequent loss of the immunity, which follows sooner or later. The second factor of natural selection is

THE HEREDITARY TRANSMISSION BY DESCENT IN REPRODUCTION.

Hereditary transmission, or heredity, is a corrollary of the law that in reproduction like produces like, subject to variations. It follows, then, that an acquisition (variation) in the parent must be transmitted by heredity. Applying this law to the case in hand, we are ready to explain the immunity from disease, relating to the law of limitation and the continuance of the immunity. The cells, in any given case of disease, therefore, transmit their acquired resistance to the specific poison to their progeny. This process must in time which proves to be a very definite time, give all the susceptible cells a special vital resistance, and hence the disease ends; the resulting immunity being due, as I have said, *to this sequent variation of cells which gives them a specific vital resistance, which resistance, in time, is again lost.*

I gave, as the third factor of immunity, that in any given disease the different tissues, cells, and organs of the body are different in their power of vital resistance; some having more or less and some being entirely exempt, while others have so little resistance that the microbia are enabled to obtain a foothold and create a disease,—the disease having, for these reasons, a very definite character. Variability and heredity are capable of explaining these facts. Diseases, even the diseases now existing, or variations of the same diseases, existed before man. Most of the zymotic diseases are descended from the lower animals. There was a time, of course, when the first zymotic infection made an attack upon a man the first time. In this case the definite character of the disease depended directly upon the amount of resistance to microbic poison possessed by the different organs and tissues of the man, and whatever such resistance the man possessed he inherited from the lower animals. But as this disease progressed, generation after generation, both the microbia and cells underwent variation—one offense, the other defense,—and the result, in the end, will depend in each case on which has the greater resources of variability. In the meantime the different tissues and organs acquire a resistance, one after the other, the disease in direct proportion assuming more definite character and being confined to narrower fields. As one generation of men in part of their tissues acquire exemption, they transmit it to their progeny. And thus is built up in all peoples in relation to all diseases an immunity of certain of their bodily organs to disease.

Applying these principles to the community, the explanation of why, in all invasions of disease, certain people are exempt, is very clear. Nobody knows how long *B. tuberculosis* has fed on human gland tissue. This nefarious germ has great resources of variation, and even yet can successfully attack nearly all tissues of the persons who have not yet acquired an immunity. Consumption and other diseases may be directly inherited by the inheritance of the parasite, but I think another explanation of the heredity of this and other diseases is much more satisfactory. We know that people acquire and inherit a resistance to diseases. When people inherit a disease, therefore, the *modus* is that they inherit a weak resistance to the disease and then "catch" the disease. As a special illustration of the law that people as well as communities acquire exemption from disease gradually, and not all families at once, we will find that consumption has, by warfare upon the human race, given them all exemption except one-seventh of all families, which number are yet the victims of this disease.

The logical conclusion, from the data of facts already given, is, that the communities, as well as individuals, may acquire an exemption for a time from diseases. History, in the record of the great epidemics of the middle ages, confirms this *a priori* or deductive conclusion. These epidemics no longer exist as epidemics. To be sure, great credit has been given to "sanitation" in this result, but there has never been any real sanitation on earth, unless the cessation of the method of giving overt comfort to the microbic ememies may be called sanitation. The medieval European had a "culture" of microbia in the rotting straw floor of his hut, and his cemeteries were only culture fields for the germ which was destined to cause his early death. At the present time culture material is freely emptied in sewers and rivers, and every house has a pipe leading from the sewer into the house for the easy transit of infection. Neither old Europe or the present age has yet advanced far enough in sanitation to cease cultivating the microbia of disease. They are not only cultivated in sewers, rivers, and water supply, but they are furnished transportation by iron pipes and by commerce.

Sanitation had nothing to do with the cessation of the great epidemics practically, and in fact the only sanitation, that of inoculation, which does not destroy the energy but puts the man in a coat of mail, and which is an imitation of nature's method, by creating immunity, is the only sanitation that can show verified results.

ATAVISM.

The general biological meaning of atavism is, in biology, that whenever a variation is caused by any agent or method in any living structure, and the agent or method is afterward removed, that the structure will gradually lose its variation, and revert to its former type. This law holds good in cell structure, in varieties of species, and perhaps in species themselves. At any rate, it is a general biological law, and is a factor of natural selection.

Applying this principle, it is readily seen that when an immunity from disease is acquired, if the agent which gave the immunity is removed, the protection, of the variation of cells, characterized by a specific vital resistance to poison of special kind, ought to be lost after a time, or, inversely, the variation, giving protection, does not last always, nor for an ordinary life time but is lost after a time, which may be quite definite on the average. The rule of vaccination is that it should be repeated every year or two because the protection given does not last.

Of course these phenomena of protection, and its subsequent loss, must be subject to two general factors, which are the variations of cells and and also variations of the microbia; and as exposure to the microbia is a contingency, this factor modifies the general results. But these factors do not controvert the general principles, as laid, down, relating to the relations of immunity from disease aad natural selection.

Now, from these general data of the relations of immunity to natural selection as the standpoint, I will consider some of the generalizations by gentlemen who have written on this subject, and who are engaged in experimental study of the causes of disease, their cure, and prevention.

These attempted generalizations may be classed as European and American, at least they are so classified by their champions, and there appear to be two of the former, and one of the latter. The first European suggestion was that the microbia, when in the body, consume all the tissue that they have a liking for with resulting disease, and when this tissue is all consumed then, of course, the disease ends, and as this tissue is not repaired of course, then, there is an immunity.

The second theory is based upon the observation that microbia cannot live in their own physiological waste products—which is all very true. Assuming then that any given diseased microbia, when in the body, will saturate the tissues with their physiological waste, which is retained by the tissues, just as a dead sponge holds salt water until squeezed, this process overcomes the microbia, and the disease terminates and, of course, as no more of the same species can enter the tissue, there is, therefore, immunity. .

The American suggestion, or reputed discovery, is known as the "oxygen theory," fathered by Dr. Salmon and championed by Dr. Eccles. This alleged American discovery is, of course, not a discovery at all, but an invention with a caveat filed by Dr. Eccles. It stands on the same general grounds as do the two European inventions, only Dr. Salmon's theory is a little more complex, and has more complicated assumptions.

The basis of the theory is derived by experiments with microbia, just as the other two theories are based. One of them is that when bacteria have consumed all the food they can reach they will then stop, the second is that when they have filled their food medium with physiological waste products they are poisoned, and the third is that the virulent bacteria live without much if any oxygen. Dr. Salmon's theory assumes that microbia, which are amœbic, get in to the body accidentally somehow. Finding themselves with a very limited supply of oxygen they grow virulent and poison the cells, so far there are but two assumptions. By this time, however, the cells acquire a resistance to the poison, and then the scale turns. The cells now consume their own oxygen, and by thus depriving these amœbic bacteria of what they don't want anyhow, destroy them, and thus the disease comes to an end. As anyone will notice, Dr. Salmon is obliged to make use of variation in the cells in order to make his invention work. He is like the man who invented perpetual motion, and made his machine work beautifully by attaching it to a steam engine, and keeping the steam engine out of sight. Even if amœbic bacteria could have the oxygen relations in the blood of an animal, which they have not, as described by Dr. Salmon, this fact could not explain any of the factors of immunity, except the limitation of any given disease; and this only by aid of the biological steam engine, known as natural selection. Dr. Salmon does not attempt to explain the other factors of immunity, as why the immunity persists for a time and is then lost. In fact he does not even mention these things.

But these three theories are now overthrown as inventions by a new discovery. I will ask the question: Suppose the immunity from diseases with all its factors, even the presence of disease, "spontaneous" termination, followed by protection, and then with gradual loss of the protection, can be secured without the presence of microbia in the tissues at all? In such a condition of things, the microbia could not eat up the sweet morsels and then starve. They could not fill the tissues with their own physiological poisons and die from *hari kari*. Nor could they play this game of microscopic "see-saw" with the cells in relation to depriving each other of oxygen. In such a condition of things these inventions must all go down together. Well, this condition of things is just what exists at present. The poisons of microbia have been isolated from the microbia themselves, and by inoculation into the blood, have produced the phenomena of disease and immunity by the laws of biology which are grouped and known as natural selection. Toussaint and Dr. James Law have made these experiments, as may be seen in the *Sanitarian* for March, 1886.

SANITARY CONFERENCE AT PITTSBURGH, PA.

Pursuant to a call by J. H. McClelland, M.D., member of the State Board of Health, an informal conference in the interest of sanitary reform was held, at the suggestion of Benjamin Lee, M.D., secretary of the State Board, at the parlors of the Monongahela House, on Monday, October 11th, at 11 o'clock A.M.

Present: Dr. Benjamin Lee, secretary of the State Board of Health; Health Officer Gray, Prof. Blanc, Health Officer Bradly, L. H. Hunter, Inspector State Board of Health; E. J. Smail, Attorney for Braddock's Borough; Dr. J. C. McCormick, South Side; John

Paul, Councilman; Jacob F. Slagle, Esq., of the Pittsburgh Board of Health; Dr. Huselton, of Allegheny; Dr. R. Jennings, Jr., Thomas Lindsay, Meat and Milk Inspector; C. A. Newton, Burgess of West Elizabeth Borough; Dr. J. C. Dunn, President; and Thomas M. McFarland, Attorney of the Pittsburgh Board of Health.

Jacob F. Slagle, Esq., was elected chairman, and Thomas M. McFarland, Esq., secretary of the conference.

The secretary of the State Board of Health, Dr. Lee, explained the object of the conference, which was to discuss questions brought before the State Board by different local boards in Western Pennsylvania. More complaints had been made within a radius of thirty miles of Pittsburgh than in any other part of the State, and it was, therefore, necessary to learn as much as possible of the causes of these complaints. Although the Board of Health of Pittsburgh was, in his estimation, as progressive as any board in the country, he considered that more satisfactory results could be reached by the State Board in these matters through personal interviews than by correspondence.

Crosby Gray, health officer of Pittsburgh, gave a brief history of the epidemics that have occurred more especially on the South Side, giving what he believed to be the principal causes of the same as follows: lack of proper sewerage, imperfect drainage, water supply not of the best quality, water supplies from wells not above suspicion, and the want of a regular system of disposing of garbage.

Dr. Lee here suggested that garbage could be readily cremated by natural gas.

Mr. John Paul considered the duty of the city authorities to provide for a system of removing garbage, free of expense to the citizens. Dr. Huselton, of the Allegheny Board of Health, said that a small crematory for burning garbage in connection with the Allegheny market house worked satisfactorily.

Prof. Hugo Blanc, of the College of Pharmacy, gave some very interesting data of certain tests he had made relative to sanitery matters.

Health Officer John Bradley, of Allegheny City, was interrogated principally as to the sanitary condition of Spring Garden Run, and the condition of the Schinderies in Spring Garden Borough. He replied that of late there had been very few complaints, and very little sickness in that portion of the city.

E. J. Smail, attorney for Braddock's Borough, said the local board there had been instrumental in abating a great many nuisances, but that a fat rendering establishment and certain slaughter houses were still the sources of intolerable annoyances.

Inspector L. H. Hunter verified Mr. Smail in his statements, having visited and thoroughly inspected that locality.

Austin Newton, burgess of West Elizabeth Borough, and president of the local board of health, gave a detailed statement of the recent epidemic at West Elizabeth. He said their local board of health had adopted the "Model Ordinance of the State Board of Health," and that they had succeeded in placing the borough in an excellent sanitary condition, notwithstanding adverse reports. This was accomplished by prompt and vigorous work, and the punishment of those violating the laws. "By having the State Board to back us," he added, "we succeeded more than we possibly could have done by ourselves."

Meat and Milk Inspector Thomas W.

Lindsay and Inspector Hunter reported the results of their visits to West Elizabeth borough and vicinity.

Inspector Hunter reported in regard to the complaint made to the State Board from New Castle, that the nuisance there, consisting of stagnant water on Cochran Alley and South Street, was being abated by means of a twenty-four inch sewer, Health Officer Samuel C. Nickline, of New Castle, having sent information that the work was about completed.

Major Slagle spoke of the importance of the questions involved, and thought that action taken in sanitary matters should be reasonable and practicable; that the use of abattoirs would dispose largely of the nuisances arising from slaughter houses, and that there should be a system adopted for the removal of garbage.

The necessity of a good and general system of sewerage on the south side and east end was spoken of at length.

Dr. Lee, secretary of the State Board, referred to the advisability of having Boards of Health established in townships as well as in boroughs throughout the State.

Thomas M. McFarland, attorney for the Board of Health of Pittsburgh, spoke of the legal powers of the State Board, and also of local Boards of Health.

He observed that while such boards might be more efficient if additional powers were granted them, yet there were ample legal powers in the case of most of the complaints made to Boards of Health to enable them to remedy the evils complained of. In the exceptional cases, where they cannot be reached by the laws governing Boards of Health, they certainly can be reached by indictment. The speaker further said that the State Board should be given a larger appropriation to enable the board to engage efficient inspectors; that inspectors were the working force of the board, and by a thorough inspection by them of localities having no boards of health great good could undoubtedly be accomplished.

Dr. J. C. Dunn, president of the Pittsburgh Board of Health, also referred to the importance of the State board securing a larger appropriation and of having still greater powers. He pledged the hearty coöperation of the Pittsburgh board in aiding the State board.

After Dr. Jennings had been interrogated by Dr. Lee as to his duties and powers as an officer of the State Board of Agriculture in reference to diseased cattle, with a view to determining to what extent coöperation would be possible between himself and the inspector of the State Board of Health in the event of an inroad of pleuro-pneumonia or other infectious disease in domestic animals, the conference adjourned.

ON THE RELATION BETWEEN THE WATER SUPPLY AND THE PREVALENCE OF CHOLERA IN SPAIN IN 1885.

[The following, from the British Medical Journal (Oct. 9th), is so valuable that we have thought it well to reproduce it.]

It is scarcely necessary to state that in Spain sewerage, as we understand it, is unknown. In Madrid alone is there any attempt at the water carriage of excreta; and the sewers, though well arranged as regards construction, alignment, and gradient, are of the Paris pattern, and would not find favor in the eyes of an English or German engineer of the present day. Moreover, the question of the ultimate disposal of the sewage has not been settled. At present, it finds its way by open channels to the river Manzanares, which, in summer, is no better than an open sewer.

Valencia is fairly drained, according to the notions prevalent half a century since; that is, there are privies, and ill-laid and badly-formed brick drains, originally intended to carry off rain water only, but now receiving the overflow of cesspools also. There are some such drains in Granada, but everywhere else the old-fashioned cesspit, generally pervious, is met with.

Under these circumstances, we are the better able to judge of the connection between the water supply and the incidence of the disease, both as regards time and space. Madrid suffered heavily from cholera in 1865, the number of cases at one time amounting to no fewer than 800 to 1,200 a day. The works were then completed, but the new water supply had not been made available. Last year the whole number of cases was 2,207, and of deaths, 1,366. The majority of these occurred in the houses along the course of the Manzanares and the open sewage-canals, those in the city being sporadic, and for the most part isolated. On the first appearance of the disease, the municipal authorities closed the whole of the wells and pumps, except the Fuente de la Reina, and the fountains, five public and four private, supplied therefrom.

Madrid, Malaga, Seville, and Jerez are the only towns in Spain which are provided with pure public water supplies. That of Madrid is taken from the river Lozoya, near its source in the Guadarama Mountains, whence it is conveyed by a series of magnificent works, partly covered, partly open, for fifty miles to covered reservoirs. The service is constant, there being no cisterns. Seville, except in the suburb of Triana, where a poor population of 30,000 still use the water of the Guadalquiver, is supplied from springs at Alcala, six miles distant, by old Moorish covered conduits, and under considerable pressure, by works recently constructed by an English company. Jerez also possesses an excellent supply, brought down from the mountains a few years since by a Spanish company at a cost of £30,000.

On the first appearance of cholera in the province, the authorities of Seville authorized the English company to lay on a temporary pipe to Triana, with a number of hydrants at which the people could draw without charge.

Seville, one of the cleanest towns in Spain, has no sewerage whatever, cesspools being attached to every house. But the only cases of cholera were about nine, with seven deaths in five houses, the occupants of which did not avail themselves of the company's water; and Jerez escaped entirely, while every other town in the district suffered more or less severely.

On the Tagus, below Madrid, stands Aranjuez, the summer residence of the royal family; and still lower down, Toledo, a bad specimen even of Spanish towns. Both take their supplies from the river, and Aranjuez was more than decimated by the cholera. But at Toledo, the governor, with commendable promptitude, stopped the pumps, compelled the inhabitants to bring their water from a spring some miles away, and forbade them even to bathe or wash their clothes in the river. The hardship was greatly felt, but the city was saved.

The case of Malaga is scarcely less instructive. The streets are narrow, unventilated, and intolerably filthy; but, though many of the old wells are still used, the better parts of the town have, for the last five years, been provided with an excellent supply, derived from springs at Torremolinos. No severe measures were enforced to preclude the use of unsafe sources of water, but not more than 200 cases of cholera occurred from first to last in a population of 116,000.

In Granada, Murcia, and Valencia, on the other hand, we have striking illustrations of the consequences of using water from sources contaminated by the poison of cholera.

Granada is supplied with water from the rivers Genil and Darro, which irrigate the fertile plain on which the city stands, the canals by which it is brought to the town being uncovered, and exposed to every kind of pollution; through the streets it is conducted in earthenware pipes, many of them being the same as those laid down by the Moors before the conquest of the city by Ferdinand.

The cholera broke out in the middle of July, spreading with fearful rapidity. In August the number of cases officially reported was 450 a day. By the middle of September, the epidemic had exhausted itself, the total number of deaths having been, according to official reports, 5,093, though in reality far in excess of this number; some, indeed, maintaining that these figures should be doubled. The authorities were, in fact, so completely paralyzed by the rapidity and extent of the outbreak, that, at one time, there were no fewer than 400 or 500 corpses lying piled up in the cemetery awaiting interment. The course of the epidemic followed the rivers Genil and Darro, wherever they were used for the purposes of drinking.

Murcia, whence the cholera was believed to have been imported into Granada, also suffered heavily. It received the disease indirectly from Valencia. The inhabitants, for the most part, take their drinking water from the river Segura, or the numerous irrigation canals connected with it, but the better class store a year's supply in cisterns or in huge jars of Moorish origin,—in fact, like those which served to conceal the forty thieves in the tale of Ali Baba. Thus stored, it passes through a stage of decomposition, but ultimately becomes clear and palatable, as used to be the case with the water-casks on board ship. In Murcia, the disease was chiefly confined to the cottages which stud the surrounding plains along the banks of the canals, and to the poorer quarters of the town, where the people used the water direct from the river; those whose supplies were derived from a previous year, when the river was as yet uncontaminated by choleraic excreta, generally escaping.

Valencia, is, for a Spanish town, fairly drained and clean, though less so than Seville. Starting from Alicante, in 1884, the cholera reached Jativa, a town on one of the affluents of the Jucar, which with the Turia, waters the plain of Huerto, that is, the Garden of Valencia. In the spring of 1885, the disease, which had been dormant during the winter, broke out afresh, and travelled down the rivers, attacking the various towns on their banks. At Alcira, it was especially severe, but ceased immediately when the inhabitants discontinued the use of the river water, and had recourse to a spring at some distance from the town. Following the network of canals it reached the Turia, and in the middle of May it burst out in the city of Valencia. At one time, in June, the cases numbered 700 daily, and by the end of September, when it subsided, 4,234 persons, according to the official reports, had been attacked, out of a population of 144,000.

Lastly, Sarogosa, the capital of the former kingdom of Aragon, situated on the right bank of the Ebro, and with 84,000 inhabitants, derives its water from the river near the Tudela, by a canal used also for navigation. The water is stored in reservoirs, in which the mud subsides, and is then passed through charcoal filters. Part of the population, however, drew their water from an irrigation canal, fed by the river Jalon, and others from the Ebro itself.

The cholera, which had for some weeks prevailed in various towns both on the Jalon and on the Ebro, above Saragosa, reached this city in July, attacking no fewer than 10,000 persons, or one-eighth of the population, though the mortality was not so high as in some other places. But the disuse of the water of the Jalon, enforced by the authorities, was followed by a remarkable diminution of the disease in that particular quarter of the town.

We thus see that the sanitary conditions of the various towns, being nearly equally bad, made very little difference, the incidence of the disease being everywhere in direct relation to the water supply. Where, as in Seville, and Malaga, Jerez, and Madrid, the water was good, the disease was slight or even absent, where the water supply was polluted by the choleraic excreta of the neighboring population, the epidemic was severely felt; and, most striking of all, at Toledo, where the unsanitary conditions and filthy state of the town, at the best of times, could not but have been intensified by the deprivation of the usual sources of supply, the compulsory employment of a pure water, though scarcely more than was absolutely necessary for drinking purposes, had the effect of completely averting the pestilence. Filtration, such as it was, seems to have been of little use, but a pure supply, whether from springs or mountain streams was invariably successful.

A KOREAN EPIDEMIC—SOMETHING ABOUT ASIATIC CHOLERA AS IT IS SEEN IN ITS NATIVE HOME.

[A correspondent of the Philadelphia *Press* sends this valuable and instructive correspondence from Seoul, Korea, under date of July 29th, to that paper.]

"The readers of *The Press* have heard much during the last few years in regard to the ravages of Asiatic cholera in the European countries, but it is not until one has seen it in its native home of Asia that he can form an adequate idea of the horrors which it inflicts upon its victims. It will be of some interest to hear of the work which it has done in this little empire of Korea.

The cholera entered the country by the door of Fusan, the port in the southern part of Korea, directly opposite Japan. It was doubtless brought by Japanese sailors, but it found a lodgment among the Koreans of Fusan and devastated the city. It has been stated that whole sections of that city were literally wiped out of existence. No one can quote figures, for no count was made, but it is safe to say that thousands died. The disease traveled with frightful rapidity toward this city of Seoul, the capital of the empire, situated high up among the mountains where the air is naturally pure and invigorating, and where in other conditions of civilization disease might be laughed at. No measures were adopted till the disease was so deeply seated that it bade defiance to all restraint. Every condition of weather, food, water, and sewerage is favorable to the spread of the disease. In respect to the filth, Seoul can bid defiance to all competitors. Most of the streets are from eight to ten feet wide; half of this is devoted to a ditch which runs through the whole length of the street and forms the city sewer.

HOW THE CITY IS DRAINED.

From each house a trench is dug leading into this general outlet. Thus the whole system of sewerage is open to the air. The filth of the city lies on the surface or stagnates in the trenches from which it is carried by a heavy fall of rain. Between the 15th and 20th of this month there died within the walls of this city 3,140 people,—the death rate of Philadelphia multiplied about fifty fold. The only move the government has made is to station men at the two gates from which the dead are carried out to count the corpses. Every one that dies of cholera must be carried out on the day of his death. Bnt these 3,140 came from within the walls alone, which represents but half the city. The mortality outside the walls has been fully as great. It can be no exaggeration to say that the city of Seoul lost by cholera during those days 6,280 citizens, an average of 628 per day.

On the 26th the number reported was 460 from within the walls, making a total for that day of 920. On the 27th 842 died. Imagine 1762 funerals in forty-eight hours!

At the city's gates before sunrise one finds 100 corpses waiting to be carried out for burial. As I rode out of the West gate yesterday morning I found the whole surface of the country converted into one vast cemetery. Every foot of ground was utilized to the very tops of the hills.

Nor was this the worst. In the great haste with which the work has been done there has been lack of care in the manner of burial. Of course, coffins had to be dispensed with and the burial consisted simply in laying the body on the ground and covering it with a little loose sand. I saw dogs and birds disputing over their horrible prey. Outside the city, on the hillsides and along the river banks there are whole colonies of little huts that are used by the sick when they are driven out of the houses.

SUPERSTITION AIDING DISEASE.

Good care and treatment would diminish the probability of death 50 per cent. But the customs of the people destroy even this hope. It is a superstitious belief among them that it is an evil omen to have a person die in the house. So soon as a man becomes very ill he is thrust out of doors, whatever be the weather. He then has nothing but a straw mat to lie on, and often not even that. The burning heat of the sun and exposure effect what the cholera leaves undone.

The progress of the disease is extremely rapid in most cases. Time and again have the foreign physicians who have been called out to see a cholera patient arrived too late, although no time was lost in calling in medical assistance. The symptoms may be present some hours, but the actual disease makes short work. It generally comes on in the evening, accompanied with violent purging and vomiting. Soon the muscles become knotted and the whole frame is racked until the patient is completely exhausted. The disease draws all the water from the blood, preventing the action of the heart. When taken thus they seldom live till morning.

There are over seventy foreigners

here, a large majority of them Americans. It is perhaps a singular fact that not one of them has left the city from fear of the cholera. In the first place, the foreigners have much better physiques than the natives and live in the cleanest of houses. They generally have extensive grounds on which they can take their exercise without going into the streets. Their food is all imported either from San Francisco or from London, and so the germs of disease cannot get into the system through the food. All the water that is used is first boiled and then filtered. Many use distilled water. There are no fears of the cholera among them, for the utmost precautions are taken to avoid all danger. As I sit in the evening I can hear in all directions the beating of drums and the shrill cries which are made by the frightened people to scare away the cholera-fiend.

Korea is just entering upon her career as a civilized nation, and especially now does she need the sympathy of all Christian nations while she is in such distress."

THE EPIDEMIC AT MORGANZA, PA.

The following report of an investigation into the causes of an epidemic of continued fever, existing in one of the buildings of the State Reform School at Morganza, Pa., has been made by Medical Inspector Dr. R. Lowry Sibbet and Dr. Benjamin Lee, secretary of the State Board of Health of Pennsylvania.

NATURE OF ILLNESS.

"Up to the time of our visit, twenty-three cases of fever had occurred, one of which had terminated fatally. Of these twenty-three cases, fifteen were from one building, while the remaining eight were about evenly distributed among five other buildings or wings.

These eight were of a much milder type than the others. The building in which the large number of cases occurred is that occupied by "E" family. Of forty-six persons sleeping in the dormitory of that building, fifteen have been taken sick, or one-third of the entire number. We examined all the patients in the infirmary, sick and convalescent, as well as those who had returned to duty, exhibiting the disease in every stage from the second day of the attack to the end of the sixth week. It is our opinion that the large majority of the cases have not been true typhoid or enteric fever, but rather a low type of continued fever; some of them, perhaps, properly to be designated as bilious fever. The medical treatment which they had received appeared to us judicious.

CAUSES OF THE OUTBREAK.

We find several conditions contributed to the production of this endemic.

First. The introduction of steam of quite high temperature, into the rain-water spouts which communicated directly with the main sewer, the result of which has been to draw up the air from the sewer, and convey it through the open windows of the dormitory, close to which these spouts open in the gutter of the roof. In support of this theory, we would call attention to the fact that a large proportion of the cases occurred in individuals whose beds were in close proximity to the windows.

Second. The existence of flues running from the cellar to the dormitory, originally designed as hot-air flues, but now serving only to convey the cellar and ground air directly to the dormitory.

Third. The damp condition of the ground around the disused furnace and boiler in the cellar.

Fourth. The overheated condition of the cellar as compared with the remainder of the house, establishing a strong upward current from the former to the latter.

Fifth. The possible opening of a connection with the sewer by rats which have gnawed off one end of the lead water pipes below the dining-room sink, where it is said there is a bad smell in the morning.

Sixth. The defective condition of the dining-room sink, which is cracked through and permits water to escape into the wood work, causing the wood to decay.

Seventh. The overcrowded condition of the dormitory.

SUGGESTIONS FOR THE REMOVAL OF THE CAUSES OF THE OUTBREAK AND CONTINUANCE OF THE FEVER.

First. All connection between the rain water spouts or conductors and the sewer should be severed, and the rain water conducted on the surface.

Second. The main sewer should be flushed for twenty-four hours with the largest head of water that can be commanded.

Third. The main sewer and all the house connections should be disinfected.

Fourth. The evacuations of those ill with fever should be passed in vessels containing a large quantity of a strong disinfectant solution, and then carried a considerable distance away on the farm and buried a foot deep.

Fifth. The bedding in the infected dormitory should be completely changed, new ticks should be furnished, new straw put in them, and the blankets washed.

Sixth. The floors and all other wood work of this dormitory should be washed with a solution of carbolic acid or of bichloride of mercury.

Seventh. The walls of the dormitory should be calcimined.

Eighth. There should be a complete new dining room sink, both iron and wood work, the old decaying wood being entirely removed.

Ninth. Careful investigation should be made to determine whether the sewer has been opened into by rats under this building.

Tenth. A defective trap in the floor of the laundry in the girls' building should be put in order.

Eleventh. The flues from the cellar to the dormitory should be at once walled up.

Twelfth. The establishment of a strong exhaust current at the terminal end of the sewer by means of a steam engine and piston would aid materially in keeping the sewer free from obstructions.

Thirteenth. As a few cases of the fever have occurred in other divisions, the connection of the rain water conductors of all the buildings with the sewer should be severed.

Believing that the adoption of the foregoing suggestions would completely rid the institution of the infection which appears now to have a strong foothold in one at least of its buildings, we strongly urge the same upon the attention of your honorable body.

ADDENDUM.

As an addendum to the preceding report, we cannot too strongly express our conviction of the urgent necessity existing for another building for the inmates of this admirable institution. All the dormitories without exception are overcrowded, some of them to at least double their capacity, measured by the lowest limit assigned by the laws of sanitary science.

So long as this condition of things exists, the management of any epidemic that may occur will be a matter of great difficulty. This remark applies to the infirmary with even greater force than to the dormitories. The matter cannot be brought to the attention of the Legislature too soon or with too much earnestness."

DISCUSSION OF PROF. H. C. WOOD'S PAPER "ON THE HYGIENE OF OLD AGE."*

BY LAURENCE TURNBULL, M.D., PH.G.

Aural Surgeon to the Jefferson Medical College Hospital late Honorary President of the Otological Subsection of the British Medical Association at Cork, and Author of a Work on Hygiene of the Ear, etc., etc.

My distinguished friend has in the first part of his paper dwelt upon the great importance of care in those who are aged and yet desire "to live out all their days." There are several ways which in my experience have been the cause of many aged persons dying before their time. Taking too much exercise by walking or running too great a distance. The idea that they are able to do what they have done when younger, or they attempt to jump off a car in motion, or run to catch one. When an old person finds, when walking up an elevation or against the wind a slight catch or oppression in his chest or back, let him stop at once and rest, or get into some conveyance. When very feeble, attempting to get out of bed in the morning before taking nourishment, or to open his door suddenly when called, or to do what they know they are incapable of without help, running the risk of a fall, breaking a bone or other fatal injury. These things they often do from a feeling of pride, not willing to be helped, or to be dependent upon even those who love them. I have known a number of old persons to have a slight fall over a stool, hassock, or even a piece of extra carpet which terminated in death.

Another point is the avoiding taking cold. This is to be guarded against in the open air in the country, and even in the city, by wearing several garments in the morning,—a vest, cardigan jacket, and coat. A light overcoat in summer, and a heavy one in winter and spring. As the day becomes warmer, one after another is laid aside so as to be comfortable. The attending of meetings at night, either for business or pleasure, is very apt to be the means of producing a bronchial catarrh, pleurisy, or pneumonia, causing in the aged sudden death. Riding in an open carriage in the early spring, fall, or winter without sufficient covering of the lower extremities and feet is very dangerous. Cold is also apt to be taken from the loss of hair on the head, or draught on the back of the neck. Also from being uncovered at night, even in bed, or taking a nap through the day without a heavy wrap or blanket. To avoid taking cold in the night in bed, the head should be covered with a night cap, and flannel underwear worn in bed, and short woolen socks in spring or winter. I regard this of great importance, not only to the very aged but those of middle life, and those of delicate constitution, for at night the nerve sentinels are off guard, and the system is peculiarly liable to the assaults of disease. The clothing of the aged should be of dark flannel, lined with compressed wadding in winter to retain and attract the heat of the open fire and sun. In summer it should be of loose woolen material, of light color to prevent the too heating rays of the sun on the body, yet prevent chilliness of the skin. When the sun is very hot and no shade, a light colored umbrella should be used to prevent sunstroke, or congestion of the brain during the spring and summer.

---

* Read before State Sanitary Convention, held in Philadelphia, May 12, 13, 14, 1886.

Dr. Wood has spoken of the usefulness of artificial teeth to the aged. I will go a step further and state that the use of artificial teeth on a plate of gold, platinum, or dark rubber has been one of the most important aids to longevity of the present day, making it possible for middle-aged, old, and very aged persons to enjoy a diet, which they never could with gums alone. They are also a preventive of indigestion and dyspepsia, by the power they give to masticate solid food, so as to dispense with an exclusive liquid diet, which latter is so trying to a delicate stomach. The aspect of the aged has also, by the artificial teeth filling out the face, been most agreeably changed for the better and the nose and chin no longer meet as the typical picture of the aged a century or less ago.

So far I have agreed with every point in the admirable paper of Dr. Wood, but when he becomes the advocate of wine as a beverage—"one or two glasses of generous wine at dinner aid digestion, quiet for the time being, nervous irritation, and in no way do harm"—I must beg to differ from him. If a stimulant is to be given a very feeble old person, I believe it is best to give it as alcohol pure, or old whisky or brandy in milk, or in a mixture as we would give one of the same compound, ether or chloroform, in medical doses in the tea, gruel or soup, as there is but little pure wine to be had at the present day, being most of it a compound of alcohol, tannin, and ethers made in France from the beet root and dry raisins, flavored with various artificial ethers, and little or no grape juice, except in rare cases.

It should be withdrawn when the individual is able to take a sufficient quantity of good, substantial diet, as extract of malt, beef essence or solid beef, milk, and peptonized cream, with now and then a corroborant of elixir of bark, compound spirits of lavender, or some other nice aromatic.

Age is no protection from temptations incident to our physical constitution; rather does it weaken the resolution to these temptations, and more than one medical man can recall painful instances in which a youth of probity and a middle life of honor has been darkened by an intemperate old age.

Mr. Wickfield, in "David Copperfield," is by no means an unreal character in life. Similar cases of secret drinking we all have known.

Dr. Wood, in reply to these observations, stated that as far as chemical composition goes, sawdust and flour were the same, and yet how different when made into bread or pudding, and just to compare alcohol, and the lovely wines of beautiful Spain, and France, with their rich bouquet, and their various others ingredients so acceptable to the sick man's stomach. The aged owner of a cellar of old Madeira would hardly be willing in his old age to part with it or substitute alcohol in any form or mixture.

We had not an opportunity of answering Dr. Wood, but will in our own work shortly to be issued on this subject. The Hygiene of the Aged; or, How to Grow Old Healthfully and Comfortably, and the Longevity of Physicians. By Laurence Turnbull, M.D.

INTER-STATE NOTIFICATION IN INFECTIOUS AND CONTAGIOUS DISEASES.

The following resolutions, presented by the National Conference of State Boards of Health, were adopted by the American Public Health Association at Toronto, Oct. 8, 1886:

Whereas, It is necessary for the protection and preservation of the public health that prompt information should be given of the existence of cholera, yellow fever, and smallpox; be it

1. *Resolved*, That it is the sense of the National Conference of State Boards of Health that it is the duty of each state, provincial, and local Board of Health in any locality in which said diseases may at any time occur, to furnish immediately information of the existence of such disease to Boards of Health of neighboring and provincial states, and to the local board in such states as have no state board.

2. *Resolved*, That upon rumor or report of the existence of pestilential disease, and positive definite information thereon not being obtainable from the proper health authorities, this Conference recommends that the health officials of one state shall be privileged and justified to go into another state for the purpose of investigating and establishing the truth or falsity of such reports.

3. *Resolved*, That whenever practicable, the investigations made under the preceding section shall be done with the co-operation of the state or local health authorities.

4. *Resolved*, That any case which presents symptoms seriously suspicious of one of the aforenamed diseases shall be treated as suspicious, and reported as provided for in cases announced as actual.

5. *Resolved*, That any case respecting which reputable and experienced physicians disagree as to whether the disease is or is not pestilential, shall be reported as suspicious.

6. *Resolved*, That any case respecting which efforts are made to conceal its existence, full history, and true nature, shall be deemed suspicious, and so acted upon.

7. *Resolved*, That in accordance with the provisions of the foregoing resolutions, the Boards of Health of the United States and Canada represented at this conference, do pledge themselves to an interchange of information as herein provided.

IRVING A. WATSON, M.D.,
Secretary American Public Health Association.

HYGIENE OF THE SICK.

A LECTURE BY WM. B. ATKINSON, M.A., M.D.,
Professor of Pediatrics and Sanitary Science in the Medico-Chirurgical College of Philadelphia.

Gentlemen:

Hygiene of the sick should begin by care in the selection of the room in which the patient is to remain. This should preferably be an upper apartment, so as to be away from the noises of the house, the odors from the kitchen, the coming and going of the inmates. Such a place is more easily isolated, as may be required in the case of infectious diseases. Select a large, airy room with plenty of windows, the value of which will be seen hereafter.

The room should be prepared for its occupant by the removal of all save the furniture absolutely requisite for comfort and attendance. Carpets, hangings, and the like must be interdicted. The first always acts as a secure and ready nest for the reception of dirt, disease germs, etc., and the second, in addition, aids in keeping out pure air.

The sick require an abundance of air. As I told you in a former lecture, air is valuable as a diluent of disease poison. Hence to the sick it is a great necessity to aid the system in ejecting from its portals the germs of disease. Dilute the materies morbi and thus its effects are less powerful for evil. Again, by an abundance of air, the disease becomes so attenuated that it rarely has power to extend to other persons in the vicinity. The reason is seen where by reason of poverty, cold, bad ventilation, the atmosphere of a house is loaded with the infection. Here case after case occurs, and often these cases are more virulent than the original one. On the contrary, with pure ventilation, should new cases occur, they are more likely to be of a greatly modified form.

Ventilation of the sick room is equally as important as medicine or food for the patient. This must be so performed as to avoid drafts or cold. Remember cold air is not always pure air. When the circumstances are such that an influx of air would blow directly over the patient, he should be well covered, head and all, during the time that the windows and doors are required to be opened. However, with due care on the part of the attendant, this rarely becomes requisite, as then the ventilation is carefully kept up, and the air is never allowed to become offensive.

In ventilating a room, as where from any cause the air has become foul, a very simple yet effectual method is to protect the patient, open the windows and fan back and forth the door until the air has been completely changed.

Here will be seen an additional reason for the prohibition of visitors to a sick room. Remember that each person aids that much in the exhaustion of the oxygen and the pollution of the air, besides often bringing in odors, as fumes of tobacco, which materially add to the already infected air.

Isolation of the sick, particularly in the case of infectious diseases, not only prevents to a great extent the spread of the disease, but aids in the more rapid recovery of the patient. There is rarely any advantage in permitting the visits indiscriminately of friends, neighbors, or the like, and almost invariably, in very many instances, great disadvantage results. Ill-advised remarks, officious intermeddling with the nurse and the doctor are the least of the evils produced. Conversation, if held in a whisper, annoys the patient by causing him to strain his attention to learn what is being said, and if aloud and directed to the patient wearies him, and thus undoes all that has been done towards recovery. Quiet and rest are good medicines and should never be interrupted.

Light in the sick room is a necessity. Of course, the glare of the sun or of a light should be shaded from the face of the patient, and especially in diseases which cause ophthalmic trouble, but the sick room must be so lighted as to relieve that dismal appearance which particularly in earlier times was regarded as a fixed rule; so much so that the doctor would go stumbling into the room. Stools, chairs, and what not appeared to have been purposely placed so as to act as traps for the unwary, and when finally he had reached the bedside, he generally sat down in a bowl of gruel, while his hat disappeared into some unknown recess from which it must be extracted when he was about to depart. In the lying-in chamber good sense is coming to the rescue, and the birth room of the new-born is no longer kept like a dungeon.

Darkness causes despondency, even in those usually most cheerful, and where from insomnia or the special nature of the attack there exists a tendency to delirium, this is sure to be increased. The patient, particularly when a child, lies with wide open eyes, straining into the gloom to make out the purport of some shadowy thing, which in the uncertain light takes by turns uncanny shapes. The semi-darkness of the room at night often causes "night terrors," even in those who are well, and thus is stirred up a picture of unhappiness and dismal forebodings in many a child which long remains to haunt them at the approach of night.

Remember, *sunlight* is itself a curative means, and under proper precautions greatly aids the approach to health, hence we find the sun gallery is rapidly becoming a necessary addition to hospitals and sanitaria.

Of course, as in measles and the like where the eyes have been more or less affected, care needs to be exercised to protect these organs while the system is being exposed to sunlight.

Unless it is known, seek carefully for the *cause of the attack*, and remove it when possible. We may instance impure water or air, damp apartments, cellars with more or less water in them, the vicinity of manufactories, or other means by which injurious odors are given forth, etc.

Unless the cause is removed, it acts and re-acts upon the patient. Hence, we frequently find advantage in removal of the case to another room, to a different part of the same locality, or entirely far away from the place where the disease originated. This is particularly useful where the cause of the attack cannot be ascertained or cannot be removed.

Often we find it dangerous to attempt the removal of the disease-producing cause while patients and others are present. Thus the lecturer encountered two very malignant cases of cerebrospinal fever undoubtedly resulting from the removal of an old wooden drain and the substitution of terra-cotta.

Even after such improvements are made, time is required for the thorough purification of the house.

Thus we constantly see a rapid restoration to health when a patient is taken to the seashore, the mountains, or to the pure country air. Every one can readily see the points here indicated and their proper application.

Food in the sick room. Care of course will be had by the physician as to its proper preparation and quantity. While this is the nurse's duty, it behooves the doctor to see that his orders are carefully attended to. But hygiene sees that the food after being brought into the sick room is not injured by the air of that room. The patient may have fallen asleep when the food is ready; it is placed in a tray, often uncovered, and the attendant waits till the waking moment occurs. In the meanwhile, the food is absorbing the odors, the germs of disease, and it is not only made less palatable, but often an additional cause of disease. We lose the benefit of the food, and add to our trouble.

All articles should be fresh, and used at once or removed from the air of the sick room. What is not used should be thrown away. Unfortunately, hygiene has been so little studied outside of the medical profession that few are aware of the ease with which disease may be conveyed to others by means of food. At an early day the lecturer will enlarge upon the ready absorption of disease germs by milk, water, and the like. Thus, as in scarlatina or typhoid fever, conveying it for miles to those who are deemed to be far beyond the reach of the infection. Instances are on record of this conveyance by letter, and one case is quoted where food cooked in the presence of scarlatina, packed into a basket and carefully covered with a napkin, thus carried the disease to a large family some miles away. Hence, food from a sick room is to be used at once or destroyed.

We constantly see water or milk standing close by the bedside. This must be avoided as far as possible. Remember that milk sours and rapidly becomes dangerous in such an atmosphere, and water absorbs everything that floats in the air. An easy method by which to have these fluids at hand and yet without the atmosphere of the sick room is to have a small shelf fixed on the window ledge outside of the room. Here may be kept, milk, beef tea, and the like in carefully covered receptacles, close at hand, yet measurably safe.

Gentlemen, the time has elapsed, and this subject must be continued at our next lecture.

ACUTE POISONING FROM SARDINES.

A correspondent of the *Med. Record* writes that a family living near New York city purchased a box of sardines. A young lady of the family ate one or two on Sunday evening, and all through that night suffered from violent nausea, vomiting, colic, and finally diarrhœa. The cause of the trouble was not suspected, and two days later seven members of the family, including two servants and a child two and one-half years of age, ate from the same box. Two or three hours after this they began to suffer from nausea and vomiting, followed in some cases by profuse painless watery discharges. One of the servants, a woman aged forty, was brought into a condition of collapse, and for a time there were even fears of her life. The little child only took one very small taste. She suffered, nevertheless, from nausea and vomiting for a few hours only. The effect of the poisoning was very prostrating, it being nearly a week before all had recovered strength. Very little actual pain was felt.

The sardines tasted well, and showed no signs of decomposition. They were supposed to be of the best quality. The fish, unfortunately were not examined.

DISINFECTION OF BILGE-WATER.

Following the results of experimental work in the *Deutsche Reichsundheitsamt*, the German navy is instructed to disinfect the holds of vessels and contents with corrosive sublimate. The results of the investigations referred to are:

1. Sublimate destroys the most resistant micro-organism, and it is safe to assume that the special infectious agents that may have become established in a ship hold can be so destroyed.

2. The sublimate should be evenly distributed. To this end so much should be added to the bilge water that a distinct mercury reaction can be shown.

3. Complete disinfection is accomplished after eighteen hours.

4. The hold should be washed and pumped dry four successive times. Thereafter only traces of sublimate remain, that can be of no danger to the crew.

5. The ship is not injured by these sublimate infections.

THE ANNALS OF HYGIENE.
THE OFFICIAL ORGAN OF THE
State Board of Health of Pennsylvania.
PUBLISHED MONTHLY.

Subscription, two dollars ($2.00) a year in advance.
Address all communications to

JOSEPH F. EDWARDS, M.D.,
224 S. 16th St., Philadelphia, Pa.

MEMBERS OF THE BOARD.

EDWARD WM. GERMER, M.D., Erie, President.
PEMBERTON DUDLEY, M.D., Philadelphia.
DAVID ENGLEMAN, M.D., Easton.
J. F. EDWARDS, M.D., Philadelphia.
RUDOLPH HERING, C.E., Philadelphia.
J. H. McCLELLAND, M.D., Pittsburgh.
BENJAMIN LEE, A.M., M.D., Secretary and Executive Officer, 1532 Pine St., Philadelphia.

Editorial.

IS SEWER GAS POISONOUS?

The following somewhat startling question has been put to us by Dr. C. L. Dana, of New York City: "Can you refer me to any *demonstrative evidence* that sewer gas is poisonous?" We most certainly can, but before giving place to our own reply, we have thought it well to allow some of our readers to pour broad shot into this dangerous skeptic. No doubt there are others who are equally doubtful, and it will be well to answer them all at once. Therefore, we say to our readers, let us have your replies to this extraordinary query.

BACK NUMBERS.

This journal became "The official organ of the State Board of Health of Pennsylvania" with its issue of July, 1886. We have on hand, and can supply, the journal for July, August, September, and October, so that subscriptions may commence with July 1, 1886. Thus you will secure all the papers read before the sanitary convention.

QUERIES AND REPLIES.

We are anxious to have our readers ask questions. This journal was founded as an educator in the science of hygiene. If a reader does not happen to find in it just some particular information he is in quest of, let him ask for it. We will always welcome queries, and furnish authoritative replies.

OUR ILLUSTRATIONS.

"In one ear and out of the other" is a very old but a very true saying. But when we appeal to the mind through the eye, it is a very different matter. That which is photographed upon the retina is much more lasting than that which is impressed upon the tympanum. Realizing this fact, we have decided to call illustrations to our aid to enable us to make clear the lessons of hygiene that we preach. In each number we will have different illustrations, and we trust that this important step will be appreciated by those whom we desire to become subscribers.

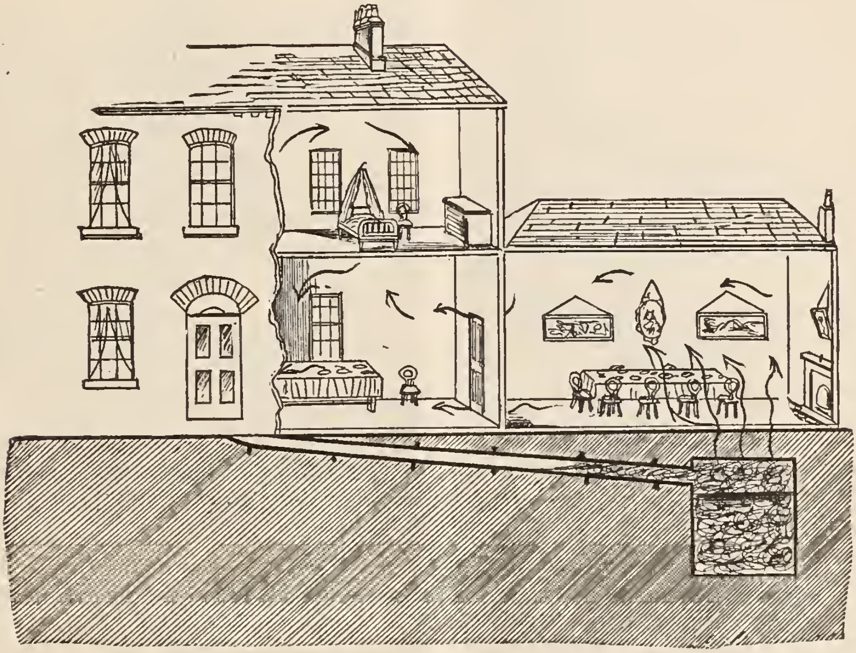
CURIOUS SOURCE OF LEAD POISONING.

A case is recorded in a German medical journal in which an infant was poisoned by the lead contained in a cosmetic on the face of the nurse. The child was five weeks old, and was constantly crying and suffering with colic. Its skin was of a dull, bluish tint. The nurse had long been in the habit of using a cosmetic, which contained a large proportion of lead. It is stated that upon the removal of the cause and appropriate treatment, a cure was effected in a few daya.

Notes and Comments.

WHY MR. L——R AND HIS WIFE DIED OF TYPHOID FEVOR.

Four or five years ago Mr. P——t L——r, one of the richest bachelors in Philadelphia, married a most beautiful society girl, and they went to live on West Spruce Street. His wealth was great and he bought a beautiful house. It so happened that the closets of this house drained into a well in the back yard. When Mr. L——r bought the house, connection was made with the sewer in the street and the well in the yard was no longer used. Our friends expected to entertain a great deal, and the house was not large enough for them, so an addition was built directly over this disused well. It was not cleaned out nor was it disinfected. It had been covered over, and over it was erected the addition to this palatial mansion. In three months' time, first the wife and then the husband were dead of Typhoid Fever. Had this well been cleaned out, disinfected, filled up and built upon, all would have been well. How the disease entered the house is shown by the arrows in the drawing.



RULES OF SHORT LIFE.

Lord Bacon's signs of short life are quick growth, fair, soft skin, soft, fine hair, early corpulence, large head, short neck, small mouth, fat ear, brittle, separated teeth. A modern observer has supplemented these by the following: Going into a saloon twelve times a day, sitting on a railroad crossing, and writing original poetry.

PROPOSED PUBLIC-HEALTH LEGISLATION IN FRANCE.

In the French Chamber of Deputies M. Siegfrid has introduced a proposition involving decided changes in the laws governing the organization and the administration of the public-health service. The decline in the birth-rate in France, and the rapidly-diminishing excess of the births over the deaths, has led men of all political views to unite in support of measures calculated to render more efficient and uniform the laws relating to public health. The Academy of Medicine, and other scientific bodies, have adopted this resolution: "Following the example of the majority of foreign countries, the administration of state medicine should be intrusted in France to a single, independent, administrative direction, competent and responsible as well in relation to the central power as in the departments and in the large cities."

The present proposition is based essentially upon the draft of a law prepared in 1884 by the Comité consultatif d'Hygiène publique, under the presidency of M. Brouardel. The several sections of the proposed law (1) specifically define the duties of the public health administration; (2) institute a single instruction of the administration of the public-health service; (3) create a service of agents of public health; (4) govern the formation of councils and commissions of public health (at the head would be a national council with six consultants; secondly would come departmental councils and health commissioners of variable number for each department); (5) direct that the deliberations of the several councils shall be transmitted at once to the competent administration, which shall communicate their decisions to the persons interested within a week. A laboratory would be placed under the control of the National Council of Public Health.

The editor of *La France Médicale* dwells upon the capital importance of this proposed legislation, and speaks in very favorable terms of the prospect of its passage by the Chambers.

OCEAN-GOING STEAMERS AS DISSEMINATORS OF DISEASE.

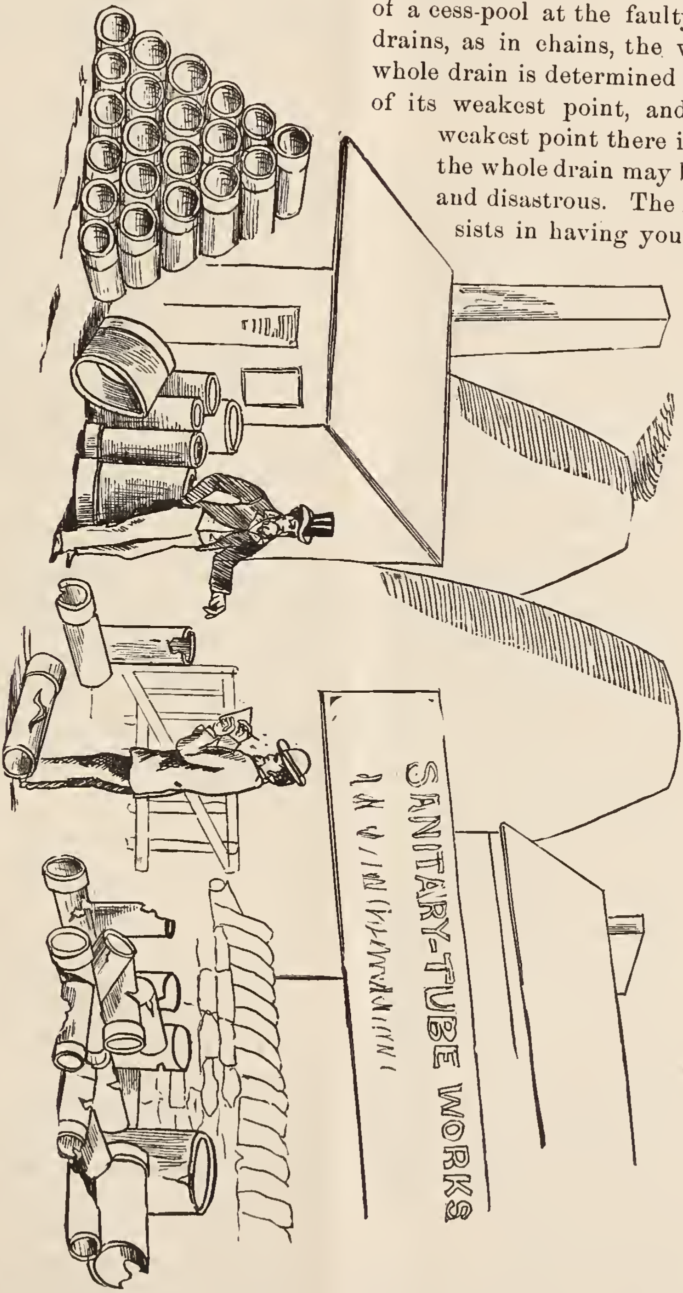
After commenting on the miserable hospital accommodations of ocean steamers, and criticising the parsimonious and short-sighted policy of the owners of the vessels, which places the lives of their patrons in jeopardy, because they will not pay enough to secure the services of good physicians, the *British Medical Journal* says: It seems to have been abundantly proven that the time has come when England and America ought to combine together to form a marine medical service of competent men, responsible, not to the owners, but to the governments of the two countries. The carrying trade is largely in the hands of England, and it behooves her to stir herself to remedy this glaring evil; otherwise, the United States will be fully justified in taking the matter out of her hands altogether, and that shortly.

QUERIES AND REPLIES.

We wish this journal to be a medium for the interchange of ideas and suggestions between its readers. Hence we will be pleased to have our readers ask questions in relation to hygiene, personal or public. These queries will always be answered by those thoroughly competent to do so.

THAT RASCALLY PLUMBER.

It is not uncommon for those who secure contracts for the plumbing and draining of cheap houses, to buy what are known as "*Seconds;*" that is tubes or pipes that are cheap because they are inferior, either by fracture or by being mis-shapen, oval when they should be round or *vice versa*. Each such defect will allow a leakage and the formation of a cess-pool at the faulty point. In drains, as in chains, the value of the whole drain is determined by the value of its weakest point, and, if at the weakest point there is a leakage, the whole drain may be worthless and disastrous. The remedy consists in having your eyes open and seeing that your contractor does not palm "*Seconds*" off on you.



HOW TO GROW STRONG.

Of course it is not every one who can find the time to do as does Frank Hearld, the prize fighter, when training for a fight. But, taking his course as a model, we would say that the nearer one approaches to it the stronger and healthier will he be.

He rises at 5 A.M. and walks five miles leisurely, and on his return partakes of breakfast, which consists of either beefsteak, or mutton chops, boiled eggs, dry toast, and tea. After a rest of thirty minutes, he goes to an artificial track and runs 150 yards at the top of his speed. This feat he accomplishes ten times at intervals. He then returns to his impromptu gymnasium and is thoroughly rubbed down, and then goes into the sea and remains for sixty minutes. He runs back to the bathing-house and is again rubbed down until his flesh is the color of a full ripe peach. Hearld then rests until his dinner hour, and that consists of roast beef, toast, custard, and tea. He does not drink Bass' ale, porter, or any liquor. After one hour's rest, he retires to the gymnasium and strips, putting on a pair of trunks, and for one hour he fights the rubber ball until he perspires freely. Then his trainers again rub him down with Turkish bath towels. He then rests thirty minutes, and rows a heavy working boat two miles and a half and back at a quick pace. On his return he is stripped and thoroughly rubbed down and dry clothes put on. Hearld then rests until supper time. His supper consists of beefsteak or mutton chops, dry toast, and tea. After supper he walks five miles and returns to sleep, going to bed about 9 P.M.

We would prefer to leave out the *running*, would reduce the time in the sea to *fifteen* minutes, and would row at a *slow* space, and then we have about as perfect a system of "growing strong" as can be devised.

HOW TO LIMIT THE SPREAD OF SCARLET FEVER.

Dr. Jamieson (*Edinburgh Medical Journal*) thinks that very much can be done in this direction by the use of warm baths nightly, of the affected child and all who come closely in contact with him, the body being afterwards greased with an antiseptic ointment (the one which he himself employs contains 30 grains of carbolic acid and 10 grains of thymol to the ounce), and by the regular application of a solution of boroglyceride to the throat.

If these precautions are taken at the very outset of the disease and kept up through the entire course, cases which cannot be thoroughly isolated may be rendered innocuous so far as transmission of the disease is concerned. The author adds that all cloths and bedding should be steeped in a dilute solution of carbolic acid.

RENTING INFECTED HOUSES.

Starting out with the assumption (which is a fact) that the germs of disease may and often do retain their power to produce disease for a considerable period of time, even for years, you will be prepared when we say that we badly require a law in this country that will make it a punishable offence for a person to knowingly offer for rent a house in which a contagious disease has existed, until that house shall have been thoroughly and scientifically disinfected.

WHAT ONE CHOLERA STOOL MAY DO.

In a foreign exchange we read that a single cholera stool, gaining access to the source of a large water or milk supply, might presumably decimate a population reckoned by tens of thousands; while the same stool, finding its way into a stagnant sewer, might exhale its poison into a thousand houses, where there is no efficient means of cutting off the invasion of sewer gas. These facts have often enough been pointed out in connection with typhoid, but seem to have been ignored in calculating the prospects of cholera in this country. It is worth while calling attention to them in order to forewarn our sanitary authorities, the profession, and the public. By gaining or giving the earliest information of suspicious cases, by isolating them and disinfecting their excreta, by watching over the sources of our water supply, and by thoroughly flushing and disinfecting the sewers, they may hope to reduce the danger to a minimum; while individuals, by resolving to partake of no water or milk which has not been well boiled, will probably save themselves and their families from infection, and at the same time conduct a most interesting experiment in cholera prevention.

◆

MUSTY HOUSES.

The retention of decomposing matererials in furniture, says Dr. George Derby, of Boston, is a source of danger to health. Dining-room carpets receive a great deal in the *debris* of food. It is carried about in the air, and, in combination with vapor, attaches itself to woolen and cotton textures of every kind, to paper hangings, to whatever will absorb moisture. A house whose entry smells musty is dangerous. Avoid it. Don't live in it. Keep your children out of it.

◆

SIR ANDREW CLARKE'S DEFINITION OF HEALTH.

Sir Andrew Clarke declares that one half of the population of London is permanently ill. His definition of health is: That state in which the body is not consciously present to us; that state in which work is easy and duty not a great trial; that state in which it is a joy to see, to think, to feel, and to be. A most excellent definition and a most cogent argument why we should heed the teachings of hygiene.

◆

STREWING POISONED GRAIN.

We do not know whether it is customary in this country, but among the farmers in England there exists a vicious practice of strewing poisoned grain on the ground for the purpose of destroying crows. Crows are no doubt very troublesome to agriculturists, and the desirability of preventing their doing damage to young crops is the excuse which is usually pleaded for scattering abroad quantities of poisoned seeds. But those who want to get rid of crows ought to adopt the good old practice of employing small boys to scare them. The legal penalty for placing poisoned grain on land should be (and in England it is) a heavy one. Such grain may be eaten by pigeons, and other birds used for human food, and fatal consequences have been known to result in persons who have eaten the flesh of birds which have fed on poisoned grain.

A SANITARY SCHOOL BUILDING.

A committee consisting of some of the most eminent sanitarians of the country, have made a report on this subject, in which we find the following recommendations:

"1. It should be freely exposed to air and light, and should be not less than sixty feet distant from any opposite building.

"2. Not more than three floors should be occupied for class-rooms.

"3. In each class room not less than fifteen square feet of floor area should be allotted to each pupil.

"4. In each class-room the window space should not be less than one-fourth the floor space, and the distance of the desk most remote from the windows should not be more than one and one-half times the height of the top of the windows from the floor.

"5. The height of a class-room should never exceed fourteen feet.

"6. Ventilation should be such as to provide for each person in a class-room not less than thirty cubic feet of fresh air per minute, which amount must be thoroughly distributed without creating unpleasant drafts, causing any two parts of the room to differ in temperature more than 2° F., or the maximum temperature to exceed 70° F. This means that for a class-room to contain fifty-six pupils, twent-eight cubic feet of air per second should be constantly furnished, distributed, and removed during the school season. The velocity of incoming air should not exceed two feet per second at any point where it is likely to strike on the person.

"7. The heating of fresh air should be effected either by hot water or low-pressure steam.

"8. The fresh air should be introduced near the windows; the foul air should be removed by flues in the opposite wall.

"9. The building should not occupy more than one-half the lot."

WHAT THE ABUSE OF TEA LEADS TO.

Dr. J. Muir Howie writes to the *Brit. Med. Jour.* that, in his opinion, the abuse of tea is very apt to lead to the abuse of alcohol. His experience in connection with a home for inebriate women has led him to this conculsion. Many of the inmates, indeed, almost all of them, were enormous tea-drinkers before they became victims to alcoholic dipsomania. During their indulgence in alcohol, they rarely drank much tea, but as soon as the former is cut off, they return to the latter. In many instances, alcohol was first used to relieve the nervous symptoms produced by excessive tea drinking.

In some cases of dipsomania it was found beneficial to exclude tea from the dietary; in others, its use appeared of decided service in warding off the alcoholic craving; but, even in the latter cases, it must be given in measured moderation. The antagonism between tea and alcohol has long been observed.

One of his neurotic patients informed him that she always drinks less wine at dinner when she omits afternoon-tea. The habit of taking "a drop of gin" in a cup of tea arises from the experience that the nervous effects of the tea are thereby diminished. On the Continent, the same observation has been made with regard to alcohol and coffee, as the most universal conjunction of coffee and cognac abundantly testifies.

UNCOVERING AT FUNERALS.

The *British Medical Journal* warns us that this practice is often highly prejudicial to the health of mourners, who may have many living persons dependent upon them, and who are exposed by the custom to actual risk of life, or at least to a very great chance of being seized with temporary indispositions, which are certain to cause them unfair needless inconvenience. The depression of spirits under which the chief mourners labor at these melancholy occasions, peculiarly predisposes them to some of the worst direct and indirect effects of chill; and even when any person is present at a burial out of respect to the deceased, with whom he has had none of the deep sympathy due to relationship or intimacy, the risk of his catching cold is considerable, as a visitor of this kind has often walked some distance, or traveled in a hot carriage by rail or road. A duty of this kind is often pressed upon a medical man; and in his case the risk is great, and the result of any consequent illness often very serious. It is, however, very difficult to break old customs without giving offence; aud perhaps the best thing to do under the circumstances, is for the mourner to wear a skull-cap, or to raise his hat as little as possible, as both these subterfuges appear to be conventionally permissible.

WATER FOR INFANTS.

Some two years ago, Dr. N. S. Davis, of Chicago, called attention to the condition of the blood of infants in summer, which we might term *ex-aqueous*, due to the excessive amount of liquid lost by perspiration, and which he deemed predisposed the system to the summer diseases of children; and now Dr. Charles Remsen (*N. Y. Med. Jour.*) calls attention to this point, which has received altogether too little attention. We all know how seldom an infant is given any more water than that contained in its food, and yet we all see how eagerly they will often drink when it is offered to them. A slightly depressed condition of the anterior portion of the skull is one of the earliest symptoms, showing the amount of water in the system to be below the standard. Fretfulness, moderate rise of pulse and temperature, a hot dry skin, and frequent desire to nurse, are other signs. If not relieved, collapse is apt to set in.

The treatment adopted for these emergencies consists in wrapping the patient in a wet sheet, applying cold to the head, and giving as much water by the mouth as the child will swallow.

The results of this simple method have been extremely satisfactory, the child becoming quiet, and even going to sleep, while all the threatening symptoms subsided with great rapidity.

THE PUBLIC INTEREST IN HYGIENE.

Hardly a day passes that we are not forcibly told that the interest in hygiene is on the increase. As evidencing this interest, we make the following quotation from the novelist Cable's book, Dr. Sevier:

The doctor is asked to subscribe towards an asylum overcrowded with orphans in consequence of a late epidemic of yellow fever, and while putting down his name for a large amount, delivers himself thus: "In old times we used to go into monasteries; now we subscribe to orphan asylums. Nine months ago

I warned this community that if it did not take the necessary precautions against the foul contagion that has swept over us, it would pay for its wicked folly in the lives of thousands, and the increase of fatherless and helpless children——We deserved it!"

Then he reads the heading of the subscription list: "'God in his mysterious providence'—oh, sir!—what a foul false charge! There's nothing mysterious about it! We've trampled the book of Nature's laws in the mire of our steets, and dragged her penalties down upon our heads! A community has got to know these laws and keep them or take the consequences—and take them here and now, on this globe *presently*."

VACCINATION IN WEST AFRICA.

Mr. C. H. Eyles, of the British service at the Gold Coast Colony, writes to the *Lancet* as follows:

"Your remarks about the faith of the natives of East Africa in vaccination are equally applicable to West Africa—at least, so far as the Gold Coast is concerned. On examining some 150 men of the Hansa constabularly, with a view to vaccinating them, I found that at least one-third of them had been vaccinated 'in our country,' which comprises a large tract, including Sokots, Dagomba, Salaga, and other places but little known to Europeans. On one occasion one of these native vaccinators brought me three of his children to vaccinate, and intended taking them immediately into the interior as 'sources of lymph.' He, however, declined my offer of a few tubes, on the ground that the people in the interior would deem it a 'white man's fetish.' Along the coast, however, where the native comes into immediate contact with the white man, this prejudice does not exist."

PREVENTION OF COOKS' SORE EYES.

Dr. G. C. Simmons, of Sacramento, Cal., writes as follows to the Boston *Medical and Surgical Journal*, of October 7, 1886:

A Chinese cook in our employ had suffered repeatedly from attacks of sore eyes, owing to his labors over a hot cook-stove. These were soon cured by the use of washes of borax and camphor, and a caution as to the real cause. But only to return. To our surprise, not long ago he appeared in large Chinese spectacles—tortoise-shell rims and plates of mica, transparent and non-magnifying, With these he goes happily to his work, and so far with no fear of a return of the conjunctivitis, and reasonably, too, as mica is notably a protector against heat. Consulting standard works I find no reference to their use in occupations exposing one to sore eyes from heat, and the idea is certainly worthy of our remembrance

DISSEMINATION OF DISEASE.

At a meeting of the Tavistock (England) Sanitary Authority, held recently, Mr. F. M. Williams, the medical officer of health, adduced the following instances of recklessness in regard to the spread of scarlet fever in the district under his charge: (1) A case of scarlet fever in a house where the business of secondhand clothes dealing was carried on by the mother of the patient, who nursed the child; (2) a scarlet fever patient having a sister, a dressmaker, who went to her work daily; (3) case not reported until the peeling stage had arrived, other children of the same family being allowed to go to school, and the whole family occupying two rooms.

SANITARY DEFECTS AT A SUMMER RESORT.

"These drawings illustrate some of the sanitary defects of a popular mountain resort where a case of typhoid fever occurred, and shows some ways by which infection might spread.

"The first drawing shows the ground plan of the house. At the northeastern end of the house was a two-story earth closet, about three feet north of the kitchen, and connected with the house by the porches on the first and second floors. A kitchen window faced the entrance to the closet.

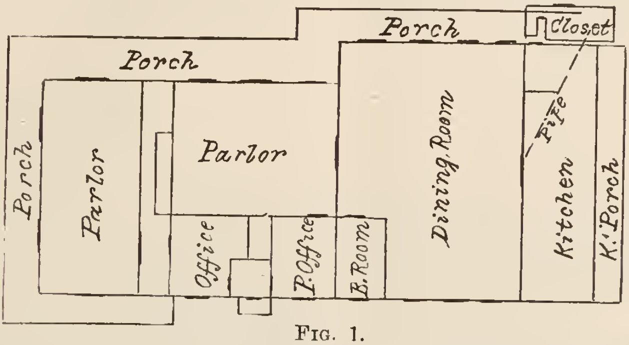


FIG. 1.

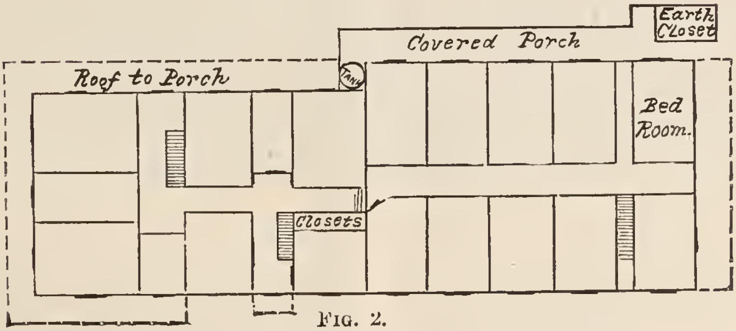


FIG. 2.

"A large zinc pipe ran from the closet diagonally under the kitchen, and was attached to the base of the kitchen chimney, which was of brick.

"In its course the pipe passed close to the cellar in which the milk was kept. The idea was to take advantage of the draught of the chimney, as a coal fire was kept burning in the kitchen. The pipe was made of sections run into each other as is done in stove pipes. One joint was open on account of a large dent in the inner pipe. A northeast wind naturally blew the gases into the house. This could pass from kitchen to closet, and vice versa.

"Second floor. Five bed-rooms had windows opening on the porch, which was covered. Same mode of entrance to closet as on first floor. The whole structure was of hemlock, and loosely constructed. Window in corner bedroom was never opened on account of offensive odors. At the other end of this covered porch was a large rain water tank, the water of which was used to fill the pitchers of the guests, and was used for toilet purposes on the second floor. The water contained sediment, and was offensive to the smell. On examination, a few days after the case of fever occurred, two or three dead mice were found floating in this tank. A northeast wind blew gases into the bed-rooms under the porch, and the tank was exposed to the same gases.

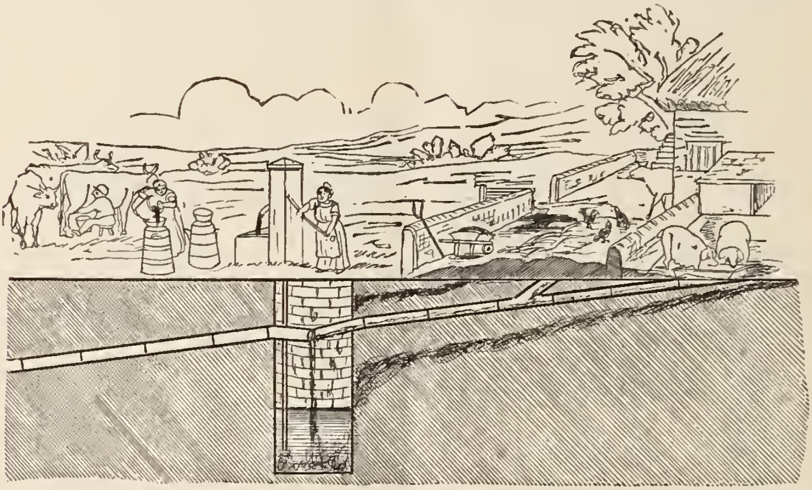
"Above this tank was another one, which supplied the third floor. Over a hundred guests, coming from all points, used this closet."

It is a dismal and contradictory fact that many so-called *health resorts* are but breeding places for disease. This is due to sanitary ignorance, to remove which this journal has been started. If those who read this journal will remember what they read, we will be enabled to remedy all these easily remedied defects.

THE PIG NUISANCE.

No doubt very many cities are afflicted with the same nuisance as is described by Major Veale, the Health Officer of Philadelphia, who says:

"Numerous complaints having been received from citizens and the Police Department of sickening and unbearable odors in certain sections of the city, I visited these sections and found 178 hogs in one man's pens, 86 in another, 162 in a third, 105 in a fourth, 252 in a fifth, 419 in a sixth, 115 in a seventh, 60 in an eighth, 349 in a ninth, and 48 in a tenth. Each and evey one of these parties feed their hogs upon the most sickening garbage, and keep their pens, grounds, and surroundings in the most disgusting state of filth, polluting the air with foul odors, and the ditches and open drainage with decayed and festering refuse. Several of these pens are grouped upon a ditch which *drains the filth into a water course on which are located several dairy farms.*



Into this water course the Delaware tide water flows for a considerable distance and furnishes water for the cattle on these dairy farms and for culinary purposes. The polluting of this water course by these styes renders the water unfit for use. In many of the places visited I found dead hogs and pigs unburied, festering in the garbage. At one place a large hog was sick with fever, which I ordered to be killed and buried. At another place a large sow with several pigs; the sow was so very thin and weak that she could with difficulty walk. Many of these pens are within 50 and 100 yards of Broad Street and within sight of the City Hall, and *directly on a line of the much traveled street.* My opinion is, that the meat from hogs fed and kept in such a manner as most of these hogs are is unfit for food. That the keeping of hogs in such a locality and feeding them on such food is a nuisance tending to the prejudice of public health. That the polluting of a water course is contrary to law and indictable. This section of the city should not be retarded in its improvements by permissive nuisances. The plea that the business of twenty or thirty people would be destroyed and they made to suffer if this hog nuisance should be abated seems little but exaggerated sympathy and refined folly. A great city like Philadelphia should provide for the collection and distribution of garbage without instituting and maintaining a nuisance to the detriment of public health and depreciation of property. I would recommend that these hogs be removed, the pens destroyed, and the filth buried, and that City Councils be requested to have erected in several sections of the city furnaces where the garbage should be burned." The Board accepted the report and passed a resolution ordering the nuisance to be abated and the places thoroughly cleansed within fifty days.

The illustration which we furnish comes in well with this report of Major Veale. It is a *true* picture from a dairy farm not many miles from this enlightened city. As does sometimes happen (strange as it may seem), the drain from the pig-stys and chicken-yard was carried through the well and a break occurred at this point. We see the pig and chicken refuse pouring down into the water, and we see the farmer's wife pumping it up again to wash out the cans into which the milk will be put. Of course, such a state of affairs is not common, but you are not sure that it does not exist on the farm from which your milk comes, and it may serve to explain much of the ill-health, not amounting to downright illness, from which you or your family suffer. The remedy is obvious.

SUICIDES AMONG CHILDREN.

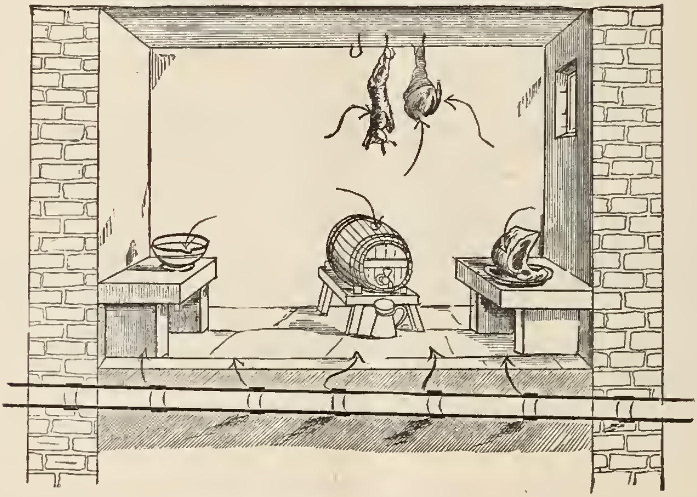
There can be no question that there has of late years been an increasing proportion of suicides among children, or very young persons. No psychical reason exists why this should not be so if the brain is very early put to hard labor, but it is unfortunate when an organ incompletely developed is thus severely strained. The practical question is whether there may not be something in our mode of training the young which "forces" the brain unduly. Moreover, is there not a tendency to place children too soon in the career of life in a position calculated to strain and worry them?

HUMAN SARDINES IN BERLIN.

Statistics lately published in a Berlin newspaper show that there is some unpleasantly close packing of human beings in the German capital. There are 40,00 houses in Berlin, of which only a small number are inhabited by one or two families; 2,500 houses contain from sixteen to twenty lodgings each, 20,000 from twenty to thirty each, and 10,000 over thirty lodgings each. Of these lodgings 75,000 are composed each of one room only, and contain 270,000 persons, or an average of nearly four persons in a room; 75,000 lodgings of two rooms each are occupied by 360,000 persons, and 30,000 lodgings of three rooms each contain 140,000. The worst of the houses are five and six stories high, and are so crowded together that light and fresh air can get to them only in moderate quantities.

NO WONDER THE MEAT WON'T KEEP, THE BEER TURNS SOUR AND THE MILK DISAGREES.

During the Centennial year in this city there was a hotel proprietor who, though doing an enormous business, yet found his outlay so great that his margin for profit was very small. His chief item of expense was for provisions. In spite of enormous ice bills, his meats would spoil and had to be thrown out. He has assured us that during one year he must have thrown away $20,000 worth of provisions. Upon investigation he found the condition depicted in our drawing. *A drain ran under his ice-box and the joints were loose.* Foul gases escaped into the ice box and the ground in its vicinity was saturated with sewage. The drain was removed and his provision bills at once diminished.



A FATAL BATH.

A case of fatal fainting, which occurred recently in England and was apparently induced by a warm bath, is not without its lesson. The robust may learn something from it, and those to whom this practice is a curative aid have better reason to regard its teaching. The utility of vapor, hot water, and Turkish baths is admittedly considerable, and it follows naturally that care in the selection of subjects for their use becomes all the more a matter of mere necessity. The sweating effect of such baths entails a certain caution. While it is precisely the fact which renders them so valuable to the chronic rheumatic, the gouty, and the sufferer from kidney disease, it must obviously, by depressing blood-pressure, forbid their use to all but those whose hearts are unimpaired. For a similar reason, the time chosen for bathing should, even in the case of the healthy, be such that the risk of exhaustion beforehand is as far as possible avoided. When hunger or toil has exercised its influence during the greater part of a working day, even the strong heart may be for the time rendered inefficient. The hour may differ indeed, with different persons, but there should be some guarantee that it is for each the fittest hour in point of bodily vigor. In the case to which we have referred, it is probable that neither of the above conditions was satisfied. The bath was entered in the early evening, and the heart of its unfortunate occupant was found after death to be extensively diseased.

The Annals of Hygiene.

Vol. I. PHILADELPHIA, DECEMBER 1, 1886. No. 12.

Communications.

OUR DRUGS AND MEDICINES.*

BY L. WOLFF, M.D.

President of the Philadelphia Pharmaceutical Examining Board, Demonstrator of Chemistry Jefferson Medical College, etc.

The use of pure drugs and medicines, properly compounded and administered. constitutes a most important feature for the preservation of health and the prevention of avoidable death. In all civilized countries it has been made the duty of the State to control and supervise this through competent officials and special laws. The harm arising from inert or impure drugs consists not only in defeating the end and object they are intended for, by admitting of the unchecked progress of disease and the fatal consequences thereof, but also in their improper and poisonous admixtures which make them destructive to life and health. Many of them possess powerful and toxic action, and consequently when compounded and administered in improper quantities and doses often give rise to most disastrous results.

That there are annually a number of valuable lives sacrificed from this cause is as little to be doubted as that all the cases of suffering, illness, and death therefrom are certainly avoidable by proper knowledge, forethought, precaution, and legal supervision. The persons who cause the deplorable accidents with drugs and medicines, though to be pitied for their participation in such sad catastrophies, are in the most instances culpable of criminal neglect, for none of these cases can be classed as unavoidable accidents, as with proper forethought by individuals and communities they might certainly be obviated. It is the duty of the State not to leave the measures and safeguards against such dangers to individual discretion any more than to leave the measures for protection of railroad crossings or the escape from fire of overcrowded buildings to individuals or companies controlling them. The duty of the government in this respect should be in two directions: first, to insure the importation and manufacture of pure drugs and medicines only; and secondly, to provide for their distribution in a manner that will secure to the individual freedom of danger from that source and the full benefit thereof intended for him.

How this is accomplished so far with us can be gleaned from the present system in vogue. All drugs and medicines imported from other countries are subject to examinations before passing the custom house by the government drug inspectors, appointed for this purpose. If found impure, deteriorated, or of inferior quality, they are either returned to the shippers or destroyed. After leaving the custom house these goods, the majority of which are of a poisonous nature, pass into the hands of the importers, wholesale dealers and manufacturers, by whom in turn they are disposed of or manufactured into other compounds, extracts, or alkaloids. How successful drug inspections are carried on at the custom house depends largely on the specific knowledge of the drug inspectors, who are presumed to be well fitted for their positions, capable of conducting qualitative and quantitative analyses, and experts in the macroscopic and microscopic examination of drugs and in pharmocognosy. After the government inspector passes the drugs, medicines, and chemicals, the State exercises no further control over them, nor is there any record of their distribution. A great many of the chemicals consumed in this country are manfactured in this city on a large scale, and it may be said, to the credit of our manufacturers, of exceptional purity and reliability. That this, however, is due more to the high character of the members composing our manufacturing firms than to the precautions adopted by the State is also true. No provision is made that the men employed in such establishments possess sufficient education and special skill to prevent errors of serious consequence. None of our wholesale drug merchants and brokers are obliged to show professional skill or knowledge nor is this required of their assistants. Still, many of these firms not alone sell at wholesale but supply also consumers directly, and that grave mistakes often arise from this source is scarcely to be wondered at. The would be poisoner has less trouble to procure a pound or more of arsenic than a few grains, and he has in that manner the advantage besides of not being tracked in his transactions by a poison register. Whoever has noticed the careless manner in which packages of poison are stored promiscuously with those of food products, or other substances intended for large consumption, can only wonder that wholesale poisoning is not of more frequent occurrence. The textile colorer and dyer, the dye manufacturer, and other artisans use these poisons in immense quantities, to be handled by ignorant persons, who permit the residues to run into our rivers, and there to pollute the water we drink every day. Our common carriers make no distinction in handling poisons, and the package of arsenic may be stored along side of flour, sugar, salt, or other foods, only necessitating shaking of the car or the breaking of a package to produce a disaster so terrible in effect that everybody would condemn the government that permitted such practice, when by the simplest precautions accidents of such kinds might have been avoided.

---

*Read before the State Sanitary Convention held in Philadelphia, May 12, 13, 14, 1886. From advance sheets of annual report.

But the loose manner of handling and distributing poisons is not the only danger to public health. Every day thousands of parcels of medicinal agents are sent to the bedside of suffering patients, who await them with expectations of relief from suffering as the sacred gift of nature, upon which their recovery, and with it prosperity and welfare to themselves and their families depends. Can we deny that every day in at least one or more instances, these expectations are defeated by the carelessness, neglect and incompetence of the person whose duty it is to supply them in accordance with certain regulations, laws, and of a certain standard?

The great state of Pennsylvania, the cradle of American Pharmacy, is to-day one of the few states of the Union which does not protect her citizens by a law regulating the sale of drugs, medicines and poisons. You may leave this city to travel into the interior of the State, be taken ill there, and your medicines may be dispensed to you by the ignorant youth, raw from the pastures or by the cunning villain, who considers drugs and medicines a profitable investment in the measure that their substance is diluted or they themselves substituted by articles of less value.

Still our legislative body has never seen fit to pass any of the pharmacy acts that were from to time presented to them. While it is true that we have the best school of pharmacy of the country in this city, nothing is done as far as the state is concerned to compel those that expect to practice pharmacy to avail themselves of its teachings.

The time is probably well within recollection of those here assembled, when fatal cases of poisoning from neglect and ignorance or incompetent drug clerks filled periodically the columns of our daily papers. To such an extent did this prevail, that at last a special act regulating the practice of Pharmacy and the sale of medicines, drugs and poisons in the city of Philadelphia was passed by the legislature in 1872. This law incomplete and faulty as it is has acted so well, that since then no fatal case of poisoning from ignorance has been recorded. The green youngster and incompetent clerk who by mercenary employers had the lives of the public at his mercy, has made way to educated and intelligent assistants. As a consequence I think that to-day with but few exceptions, you can trust your life safely to the skill of Philadelphia pharmacists and their representatives. But while I would state here that there is no more painstaking, intelligent, and better educated set of pharmacists anywhere than in this city, there are nevertheless a few amongst them whom the law cannot reach, and who carry on their business for which they are not fitted openly and in defiance of the authorities. That this is so is the fault of the construction of our pharmacy act, and works injustice in several ways. Those of you who are able to pay fair prices and go to respectable establishments can be assured of pure drugs and accurate dispensing; but is the State not also bound to protect the poor who are led by dire necessity to seek cheap shops where quality is made to suit the price and where no qualified persons are employed to compound? Many a poor ignorant colored man still pays his hard earned money to the Voodoo doctor for charms of various kinds. The Herb doctor's shop flourishes in many of our thoroughfares; and the pseudo—Indian herb doctor with his attractive Indian show and flaring advertisements deludes the masses to purchase his worthless wares.

The patent medicine vendor still holds his sway and openly defrauds the ignorant. By the power of the capital he controls he has the sympathy of the press, which he patronizes freely, and so defeats the ends of justice with disregard of law and obtains protection for his trade from legislative bodies. While the pharmacist is required to possess sufficient skill, qualification, and education, these incompetent quacks, with their cure-alls, have the right to endanger public health without restriction. The very fact that their remedies were originated by ignorant persons is often set forth as an argument to their advantage, and that they are still compounded by persons of the same stamp, who have no intimate knowledge of the articles they are handling is only too true. That many of these remedies are not even advantageously applied for the diseases they are recommended for is but the least to be said against them. Many of them contain deadly poisons which, as in some of the soothing syrups for children, often do harm and certainly retard and stunt the growth and development of our race.

If nostra and patent medicines we must have, let the law prescribe that they shall be prepared by qualified persons alone, and sold only by such to prevent their improper application. It seems a slur on the intelligence of our people that two-thirds of the money value expended for medicines should go toward the purchase of patent medicines. Just think of it! That two-thirds of all the money the people expend for medicines is wasted for stuff, of which perhaps the best that can be said is that it is utterly useless, while a great deal of it is certainly not adapted for the diseases they are recommended for, and a large portion of them do actual harm. They are probably all more or less frauds and delusions from the various bitters which offer but an excuse for tippling—the blood purifiers which are relics of a past age with its humero-pathology—to the more recent devices cunningly constructed so that by the use of irritant oils they should simulate electric or galvanic effect. To say that at least two-thirds of all the money expended for medicines is actually wasted would be of little consequence in comparison with the harm done by it.

The promiscuous use of medicines is no longer considered medical practice, and the therapeutist without diagnostic skill is more to be feared than the diagnostician without remedial agents. Still the blatant quack assures us of his power of curing diseases of which he does not know the first thing or which he could not recognize if they were brought before him. They belittle the efforts of the medical profession who derive their knowledge from the experience of hundreds of years and the application of natural sciences to the study of disease, and are certainly honest in their endeavors, while the nostrum vendor, the creature of a day, has but one end in view, the filling of his pocket. The intelligent member of society can discriminate for himself, but those who have not been blessed with a higher education, the toilers of the soil and the workshop, deserve to be protected by the State from cunning villains with designs upon their hard earnings in the hour of illness and dire distress, even more so than the citizen whose wealth is endangered by the pickpocket and the burglar. In older States and countries this has been recognized, and measures to that end have been enacted. Many of the European states entirely prohibit the sale of nostra, while in others they can be sold only when their composition is made known and tested. Can we ask less of our government than to restrict this growing abuse, or at least place it under control to prevent its harmful influence? The question arises, What can be done to accomplish this purpose? As already stated, from the moment of importation the State gives up all control of drugs, poisons, and medicinal agents. Their proper elaboration by the manufacturer and middlemen can scarcely be enforced or controlled, but before they reach the consumer some measure ought to exist to protect the public.

In this commonwealth there exist a few laws regarding the adulterations of food and medicines, but these are inefficient and with no provision for their enforcement. This latter seems to be the weak point with all these laws. Their enforcement is everybody's business, and we all know well that what is everybody's business is nobody's business. Whoever heard of a prosecution or conviction under this act, although it is well known that there are special brands of grocer's cream of tartar containing 75 per cent. of foreign material, and that many of the spices contain sawdust and other inert, if not hurtful, substances, and so with many other articles of the same kind.

It is a common idea that the retail pharmacist is to a large extent guilty of adulteration, sophistication, and substitution. In this city this was acted upon not long ago by one of our prominent daily papers; the result, however, showed but little proof for such assertions notwithstanding the courted investigation by the druggists themselves. Though this does exist with a few, it is generally the case with those who lack proper professional education and carry on this business contrary to the law. Education and knowledge brings with it a moral sense of responsibility and an endeavor to act right and honestly.

The result attending the enforcement of the pharmaceutical law of this city by the board of examiners for this purpose has greatly improved the moral condition of the retail drug business, until at this time the physician may safely send to any reputable drug store in the vicinity of his patient with the assurance of obtaining the proper remedies he desires, and the relief to his mind that any error or slip of his pen will be duly controlled and corrected by the pharmacist. The anxious parent need no longer tremble least the health-giving potion to the invalid child should by the error of an uneducated drug clerk bring death and misery in their household. That there is a need and place for such supervision may be learned from the reports of the Pharmaceutical Examining Board, which states that 33 per cent. of all applicants for the certificate of qualified assistants were refused, and only 39 per cent. of all applicants for the proprietor's certificate had this granted to them. Still the legislature of this State refused to give a similar law to the entire commonwealth. It may be better surmised than stated what agencies have been at work to such an end. The grocer and dealer in general merchandise still sells without restraint arsenic, Paris green, and other deadly poisons which are kept over and alongside the sugar bin, while the laudanum bottle and the host of patent medicines go largely towards making up his stock in trade. Is the public benefitted thereby? Is the loss of health and life annually arising from such loose practice offset by the slight gain of a few? Is the thriving trade of the cheap medicine vendor who, in opposition to all law and justice, incorporates everything and of the lowest quality in stock, an encouragement to the conscientious pharmacist, whose skill and moral responsibility is a guarantee for your life and health?

The inference is obvious. The State owes it as a duty to the public that it shall protect them from dishonest dealers in and compounders of medicine, and to the honest and competent pharmacist that it shall protect him from unfair and unlawful competition. The standard required should be high, the laws severe, and their enforcement assured. While the local law of this city has done much toward improving the morale of pharmacists and protecting the public from incompetent men, it is still sadly deficient in its effect as long as it fails to bring all offenders to justice, and as long as it does not control the quality of drugs and medicines as well as the vendors and compounders.

The great Keystone State should no longer stand alone in its unenviable position as an asylum for the incompetent druggists and drug clerks of the country. The State Board of Health and all sanitarians should unite to urge the passage of a law which will secure for the public universally pure and reliable drugs, properly compounded by competent persons only. Many of the States have adopted such laws, which have proven as deficient as our own. Let us profit by their experience so as to insure for us measures which are sweeping in extent and safeguards in every respect against such sad catastrophies as have but recently in a neighboring State robbed two loving daughters from their fond parents.

What practical measures can be adopted with these objects in view? The competition of free commerce cannot be applied to such purpose. Restrictive laws alone can be protective. Let the sale of drugs, medicines, and poisons be restricted to those alone that have fitted themselves for it, and have amply proven their fitness. Drugs and compounds of powerful action should be classified by law and directed to be kept apart from others less active. They should be kept in locked receptacles, the keys to which should be held by the competent pharmacist and his qualified assistants alone, and should be opened only in presence of a witness to control their proper disposition. Not the retail druggist alone, but all those who deal in drugs, medicines or chemicals, either at wholesale or retail should be included in this act and required to show competency, both in proprietor as well as in assistants. None others besides these should be allowed to deal in medicinal articles of any kind save the physician dispensing to his patients directly. The quality of all drugs and medicinal articles should come directly under the supervision of the State Board of Health, who should direct at least annual inspections of all establishments where medicines are sold. And lastly, the enforcement of such an act should be placed with the same board to whom all delinquencies should be reported by the inspectors of drugs, appointed by them, and also the examiners in pharmacy and others concerned therewith.

With such a law and thus enforced, I have no hesitancy to say that the tales of the murderous drug clerk would be a thing of the past, and drugs and medicines will prove as they are intended, health-giving instead of dangerous to public safety, and destructive to health and life.

ON CONTINUOUS PREVENTIVE DISINFECTION OF HOUSE DRAINAGE.*

BY HENRY HARTSHORNE, M.D., OF PHILADELPHIA.

The object of this convention is practical. We want, therefore, most of all, facts. But facts are only useful when so marshaled as to form intelligible conclusions, which can be applied in practice.

Facts concerning the prevention of infectious diseases are of several kinds: 1. Evidence as to the local and personal conditions under which those diseases occur, with greater or less violence, width of prevalence, and fatality.

---

* Read before the State Sanitary Convention at Philadelphia, May 13, 1886.

2. Scientific proof of the nature of the essential specific cause of each particular disease, when such proof has been obtained. 3. Sanitary experience with the use of means to prevent or arrest the progress of diseases on a larger or smaller scale. 4. Scientific experimentation to ascertain the most effective agencies for the destruction of the specific causes of diseases when they are known.

Under two of these heads, allusion is intended to be made to the "theory of disease germs." I have long believed in the probability that some diseases are in some manner produced by minute organisms,—microbes. In a lecture on cholera in our university in the summer course in 1866, I expressed the conviction that epidemic cholera must have such a specific cause. But the true scientific spirit requires close scrutiny of every asserted verification, even of a very probable theory. We believe, to use an illustration, that the anarchists now troubling our country are mostly comers from the continent of Europe. But it will not do, therefore, to arrest every Bohemian or Pole as soon as he arrives and dub him an anarchist. So I do not consider the evidence sufficient as yet to prove that either the comma bacillus of Koch, or the microbes of Emmerich, or of Finkler and Pryor, are the essential producing causes of cholera. It is quite possible, indeed, that the microbes, the minute organisms, which are the specific causes of some diseases, or at least their spores are, *ultra-microscopic;* too small to be discovered by the highest power yet reached, or likely to be reached, by the microscope.

Such inquiries ought, of course, to be zealously persevered with, and their results carefully appreciated. And this is equally true of experiments for the destruction of microbes by powerful chemical or other agents. Such experiments have been made by many able scientists in this country and Europe. Excellent work of that kind has been done and reported upon within the past year by a Committee of the American Public Health Association. At the same time it is necessary here to emphasize the importance of also justly apprehending the other class of facts already named,—those of sanitary experience with the actual use of means to prevent or arrest the progress of infectious diseases. Put together the well-attested results of this experience and those of scientific experimentation in regard to the discovery and destruction of microbes or disease-germs, and we have a very safe and sound basis for sanitary practice.

Of actual experience in the prevention of disease by disinfection, Dr. O. W. Wight, Health Officer of Detroit, Mich., reported an excellent example at the meeting of the American Public Health Association, at Washington, last December. Finding the sewerage of Detroit in a bad condition, with a great deal of mortality from diphtheria, scarlet fever, and analogous diseases, he went to work vigorously; and, with the aid of citizens, put into the 200 miles of the city's sewers 275,000 pounds of sulphate of iron. He also burned in the sewer manholes, under cover, three tons of sulphur; the gas from which was found to pass freely through the whole drainage system of the town. In such close coincidence with this disinfection that it must be reasonably regarded as its effect, there followed a marked diminution in the number of cases of, and deaths from, diphtheria and scarlet fever; in fact, almost a total cessation of those diseases. Such results must be accepted as of positive practical value, notwithstanding the experiments which have made it appear that sulphate of iron is not efficacious in the direct destruction of bacteria, and that sulphurous acid gas is so only in very large amounts.

Abundance of similar evidence, though seldom so clear and full as Dr. Wight's, is familiar to sanitarians. Nor is there any difficulty in reconciling it with a full acceptance of the theory of disease-germs. If it be admitted that these are the actual and essential causes of infectious disorders, then, where they exist, the thing to do is to destroy them. But, in this as in every other case, prevention is better than cure. Starving out an enemy is as certain a measure of hostility as striking him down with cannon-shot. While, then, there is a measure of plausibility in the assertion of the Committee of the American Public Health Association that nothing ought to be said to be a disinfectant which does not destroy disease-germs, this assertion does not express or contain quite the whole truth upon the subject. This much is practically admitted in the Committee's reports. Thus Dr. G. M. Sternberg, U. S. A., writes,* referring to the sulphates of iron, zinc, etc.: "The value of all these agents as antiseptics is beyond question, and when the object in view is to prevent the development of germs in privy-vaults, cesspools, etc.," they may be recommended. More than this, however, I would add, is to be said. How do "germs" act in producing diseases? This has not been demonstrated. Many authorities, among them the great bacteriologist, Dr. Robert Koch, believe it most probable that they act by generating poisonous materials, which are the direct disturbers of the health of the body and the causes of death. In a discussion at Washington in the American Surgical Association, so lately as April 29, 1886,* Dr. J. S. Billings referred to the poisonous alkaloids,—*ptomaines*, and the more recently discovered *leucomaines*, formed in dead or diseased animal bodies; and then went on to say, that the only theory which we have at present to account for the evil consequences of the lower organisms in the body is, that much of their action depends not on their presence or immediate effects, but on the impression made on the nervous system by some production of the micro-organism: that is, some poison generated by it. Therefore we may hold it to be entirely possible for a chemical agent which will not, in any ordinary quantity or strength, destroy all bacteria, micrococci, or spirilla, yet to so antagonize or decompose the poisonous material which they produce, as to make them harmless. Moreover, there is truth and importance in the remark made by Dr. Formad at the close of yesterday morning's discussion in this convention: that "there may be organic matter, *independent of microbes*, which is dangerous to health." That there is such matter, capable of producing death as well as disease, is the well-founded conviction of many, probably of nearly all sanitarians.

The committee to whose valuable labors I have already referred, make the test of a perfect disinfectant, in the strictest scientific sense, to be the destruction not only of all microbes, but also of all spores. They state, however, that in the list of disease-germs which do not produce spores, there is good reason to include smallpox, cholera, yellow fever, diphtheria, erysipelas, puerperal fever, and perhaps scarlet fever,—a very important list. Also, Dr. Sternberg, in his Prize Essay on Disinfection,* just published, says, that as a general statement it is true, that a disinfectant for one kind of micro-organism is a disinfectant for all in the absence of spores. I quote another sentence from Dr. Sternberg's Essay.† "We hasten to say that the combined experience of sanitarians, derived from practical efforts to restrict the extension of infectious diseases, is of the greatest value, and, that this experience is, to a great extent, in accord with the results of exact experiments made in the laboratory."

---

* *Medical News*, Aug. 22, 1885.

* *Medical News*, May 8, 1886, p. 530.

Here, then, we have a clear and open ground for conclusions about practical disinfection. What is needed is, first, to destroy or purify all filth, which is always of unwholesome influence, and upon which disease-germs live and multiply. Secondly, when a disease-cause is actually present in a place, to destroy it, if possible, spores and all, or to render it powerless by chemical antagonism of the poisonous material it produces.

Many agents are more or less available for these objects. The next question is, how best to use them. Ordinarily, this has been done spasmodically; irregularly. Some one dies, perhaps, as happened so lamentably a few years ago in the family of the distinguished chemist, Dr. Doremus, of New York, from sewer-air poisoning; and then for awhile after this the drainage is looked to, and a few pounds or quarts of some disinfectants are used. But this is not the right or the rational way. It ought to be done *all the time;* to be continuous. The difference is much like that between the two ways of dealing with anarchists and mobs. One plan is to leave them alone until they come with their rifles, revolvers, and bombs, ready to sack a town, and then bring a regiment of soldiers, or a Gatling gun or two, to mow them down. The other and more reasonable way is to have a good police watch kept on them all the time, and shut up and disarm every Most and Spies and Parsons as soon as they begin to show themselves. Thus, prevention with clubs and hand-cuffs will be shown to be better than attempted cure with bayonets and cannon-balls. The only proper aim, then, concerning diseases is *non-infection*, by the continuous preventive use of disinfectant materials in house-drains.

While pursuing my investigations on this subject, in which I have been interested for a quarter of a century, I have been delighted to find that this aim has been practically reached by a simple mechanical and chemical device now already in use in many thousand buildings, under the not very well chosen name of the Germicide. I venture to speak here of this because I think it is not so well and generally known as it deserves to be for the public advantage. By this apparatus, which may be readily attached to any water-closet without interfering with the plumbing, a flow of a strong solution of chloride of zinc, at the rate of about 60 drops a minute, is made to enter the closet-bowl or hopper *all the time*, whether the closet is used or not, by night as well as by day. Under its action there can be no chance for fecal decomposition or infection to occur. It fully realizes preventive disinfection on the principles which I have in this paper been endeavoring to set forth. There is with it also an arrangement for introducing the vapor of thymol into the room as an aerial disinfectant. I will not occupy time by dwelling upon that part of the apparatus, which I regard as secondary in importance, although, so far as it goes, of good intention and effect.

---

* P. 107.

† P. 105.

Thymol is a positive antiseptic,—not merely an odorous substance, which, like eau de cologne, etc., merely covers up a bad odor with a less disagreeable one. Popular confidence in the disguising of foul smells, under a notion that it is disinfection, ought to be corrected. Moreover, it is important for it to be known that an atmosphere which has no odor at all may be injurious, even dangerous to health. All foul smells are, it is true, to be suspected of having an unsanitary origin; and if, as by thymol vapor, we correct them, it is a benefit to the air in which they occur.

I speak the language of conviction when I apply terms of strong commendation to the chloride of zinc arrangement, called Germicide, because it meets precisely and fully the theoretical requirements of preventive disinfection, and also it has been amply tested in practice in this and several other cities. Its beneficial action is affirmed by members of Boards of Health and other leading sanitarians in Washington, Cincinnati, New York, Boston, Baltimore, Chicago, San Francisco, and Philadelphia. It has been in successful use for a considerable time in a number of our hospitals, and other public buildings, and in more than 1000 dwellings in this city.

An excellent place to see it on fair trial, which I have visited, is at the Brighton Knitting Mills of L. D. Cox & Co., at Eighth and Dauphin Streets, where, I have been told, hundreds of bottles of Platt's chlorides were formerly used, in the ordinary way, with only partial and temporary effect, even in deodorization. Since the Germicide *constant flow* system has been introduced there, the evil has been altogether corrected. In some factories the favorable influence of such a change on the general health of operatives has been very marked. In public school buildings, as an auxiliary to, or at least while waiting for, the somewhat elaborate method of heating and ventilation so well described here yesterday by Dr. Jefferis, it would undoubtedly be a great improvement upon the general neglect of the water-closet system in such institutions.

Chloride of zinc, according to the observations of the American Public Health Association Committee, in the proportion of five per cent. added to the material to be disinfected, can be relied on for the destruction of micro-organisms in the absence of spores. A twenty per cent. solution of it will destroy the vitality of the most resistant spores. By using Mallett's ingenious process, anhydrous zinc chloride is procured for Germicide use in such a condition that water percolating through a mass of the zinc in small lumps or blocks makes a solution of very constant strength. This constancy has been carefully tested by S. P. Sharples, chemist and State assayer for Massachusetts. It does not act on lead or iron pipes; in the language of Dr. J. R. Nichols, editor of the *Chemical News*, it is, to them, "as harmless as a solution of common soap." This could not be said of chloride of lime or corrosive sublimate in solution.

Forty or fifty gallons of water, I am told on inquiry of its makers, pass through this apparatus in a month, dissolving about three pounds of chloride of zinc; of the latter, therefore, nearly two ounces go through the closet and drain every twenty-four hours. Traps thus treated can never be emptied, either by siphonage or by evaporation; and this is of itself a very great advantage.

A trap with no water in it is worse than none. Nor will it do to place too much confidence in air-vents for traps. When only open above, no air may pass through them at all; and even when there is also an inlet below, the ventilation may be insufficient. The most intolerably offensive smells I ever encountered were, one, not a water-closet, but an open and uncleansed substitute for it, an air-hole in a passenger car on the New York Central Railroad; and the other a neglected water-closet from which the water had evaporated away, in a dwelling whose usual occupants were absent for the summer. Water does much more than air for such uses, and water, armed with a good disinfectant, will do much more still.

Water traps have been shown by Drs. F. H. Hamilton and Doremus, and others, not to prevent absolutely the absorption of foul sewer-air and its escape into the house above the water seal. It has even been found possible, by the observations of Professor Frankland, of London, and Dr. Paton and B. W. Thomas of the Microscopical Society of Chicago, for micro-organisms so to pass, and to enter the air at least when the water is agitated by bubbles of fermentation. I am not inclined to speak of these occurrences as more than possibilities; ordinarily they can hardly add much to the dangers of house drainage. But those dangers are bad enough, from the imperfection of plumbing in some instances, and from the perishable nature of materials even when the plumbing has been good, to make it of prime, private, and public necessity to avoid them.

As to the expense of the germicide method, I must refer to those in charge of its administration, with which I have no connection and have but little knowledge of it. The cost is, however, I know, moderate. Dr. Sternberg's estimate of the cost of the effective use of chloride of lime for house drainage is one cent daily for each person; of his "standard solution" of corrosive sublimate and permanganate of potassium, two cents daily for each person. The constant employment of the former (chloride of lime) in water closets would be impracticable for cogent reasons; and so would be that of corrosive sublimate, while the cost of the first of these would be about as great, and of the latter at least twice, that of the germicide zinc solution. We are accustomed to pay a stated sum every year for our water supply; another amount for our gas, and another for our coal as fuel. Surely it is worth while to expend a little every month toward the effectual preservation of our health and that of our families, without which all other expenditures are vain.

A bill has been introduced into the New York Legislature providing that every factory or other large private or public building shall, in order for sanitary protection, be fitted with germicide fixtures. I believe that if, in addition to the regulations for plumbing lately enacted by our Board of Health, there could be also one requiring every house to have a sewer-connected water closet instead of a privy well or cesspool, and obliging every water-closet in the city to have a germicide attachment, it would not only correct what Col. Waring has so well called our "home-made sewer gas," but would make disease-infection and extension almost impossible among us. Typhoid fever would greatly diminish, diphtheria would become rare, and cholera, if it should again visit this country, would pass us by almost or quite unharmed. Utopian as this may seem, yet only by such really effective measures of prevention can Philadelphia long maintain the reputation of being one of the healthiest cities in the world.

THE WATER SUPPLY OF PHILADELPHIA.*

BY J. CHESTON MORRIS, M.D., OF PHILADELPHIA.

Some statistical people, in estimating the civilization of any nation, measure it by the number of yards of muslin required by the average individual. Much more rational it would seem to me to measure it by the daily average supply of water required. To enumerate the various needs which this gift of nature meets, would tax both time and patience. Suffice it to classify them under the three heads of nutrition, cleanliness, and manufacturing purposes. With the two former classes we as sanitarians are more especially concerned, and to these I would invite your attention. As an aliment, it is necessary that the water we drink should be free from noxious qualities, and yet that it should hold in solution such saline and earthy constituents as shall tend to the building up of the tissues of the body, and promote the healthy exchange of elements of which the tissues are composed, replacing worn-out, effete matter by fresh. Were it essential only to provide a pure water, we could obtain a sufficient supply for our needs by the construction of rain-water cisterns, to be filled by the bounteous showers which vivify and fructify all habitable lands. The water thus obtained is not indeed absolutely pure water; it has been shown to be charged with gases, and even some ammoniacal salts, as well as dust particles, etc. The latter may to some extent be filtered out; but the resulting liquid is not refreshing to the taste, and is wanting in those ingredients which promote tissue metamorphosis and development. Hence this method is only to be resorted to "faute de mieux."

When rain falls on the surface of the earth, a large part of it is absorbed and percolates through the soil and rocks, becoming charged with the various elements it meets with according to their amount of solubility. The chemistry of nature is beyond our power to follow or to imitate, except in some instances "longo intervallo." We know mainly its results in the bubbling springs and fountains that run from the hills. How refreshing and vivifying is such "living water!" To it we are apt to turn as the best type of what we want for our daily supply.

SPRING WATER'S IMPERFECTIONS.

But let us look a little closer. Not only has the rain water acquired the saline materials and earthy salts which we need; there is also generally in spring water an amount of animal life which shows that the beings of humbler organization than ours have been disporting in it by the thousands. Think of the brownish sediment in the spring, and of the abundance of decaying vegetable matter to be found constantly accumulating there, and you will soon be convinced that spring water is not and cannot be the best type of potable water. Think again of the crayfish, the dead larvæ, the caddis worms and other forms of life, whose excretions and decomposing bodies are to be found there, and you will need no further proof that we must seek elsewhere.

---

*Read before the State Sanitary Convention held in Philadelphia, May 12, 13, 14. From advance sheets of Annual Report.

If still skeptical, let me remind you that navigators when seeking supplies of water for crews on long voyages find that such water, when allowed to stand, undergoes a species of fermentation; it becomes "sick," emits a nauseous odor, is more or less ropy, and finally deposits a sediment. After this has occurred, the supernatent fluid once more becomes wholesome and sweet. A number of years ago, I had sent me for analysis some water obtained from wells in a district where typhoid dysentery was raging. The region was a limestone one, with fissures through the rocks, draining all the country into the Susquehanna River. This was evident from the fact that the amount of water in the wells depended on the height of the water in the river. When certain rocks in the latter became bare, typhoid dysentery became epidemic, so that the rocks came to be known as the "Doctor's Marks;" nor was the reason far to seek. A glimpse through the microscope showed a world that would delight a Leidy or a Koch. Through the summer the minute organisms reveled and multiplied, and their dead remains settled and accumulated at the bottom of the pools. When the drought ot July and August brought the well-bucket into the sediment, a disease-producing element became the beverage of every household. If any one wishes to see this for himself, it can easily be done by allowing a pitcher of spring water to stand for a few days and then carefully examining the slimy sediment which will form.

STREAMS AND LARGER RIVERS.

Let us follow the water in its course to the streams and larger rivers and note the changes which occur. Nature establishes vast aquaria, in which plants and animals of larger growth abound and balance each other. Our experiments on a smaller scale show us how the animal and vegetable life may be made to balance each other, each supplying what the other needs, and removing the material resulting from the life of the other which would otherwise be noxious to it. Not only is this process going on upon a scale too vast for us to imagine, but in our streams and rivers another agency, or rather two agencies, are at work whose results would pass our belief, had we not the most convincing proofs of their potency. I refer to *aeration* and *subsidence.* In the brooks and streams the water, as it ripples over the stones, becomes charged with oxygen—the organic matters it contains are changed—it parts with some of its carbonic acid, and as it is filtered among the coarse gravel and stones, and meets with waters containing other earthy salts, deposits are formed which, when the water moves again more slowly, subside to the bottom; and, freed from its burden, the water in the river becomes again life-giving—life-sustaining. Hence, when we would seek for the best supply for a large city we should seek for it in a large stream or river, where these processes of duration and subsidence have had full opportunity to do their beneficent work. But it is not to be forgotten that man may mar this work of beneficent nature. When the river or stream becomes the receptacle of filth and excrement, of decaying matters, or of the poisoned refuse of factories, it is no longer health-giving, but may even become pestilential. Not only drinking from it, but breathing the tainted air above it, is the cause of disease and death. It is not my purpose at present to more than allude thus generally to these sources of danger to a community. The allusion is sufficient to enforce the necessity of avoiding the danger. Miasmatic, typhoid, and choleraic diseases afflict communities which disregard the purity of their water supply and surroundings. These sources of contamination are susceptible of being guarded against. Sewage even from the largest towns can and should be prevented from entering the rivers on which they are placed. It is no longer an experiment, but an experience, that it can be profitably handled, and thus become a source of revenue instead of a cause of disease. It would be beyond the scope of this paper to adduce the proof of this from the experience of Manchester in England, Paris in France, and several of our New England towns.

SALTS IN RIVER WATERS.

Another point to which attention should be paid is the character and amount of earthy salts, etc., which are present in the water of rivers, and largely influence their character for usefulness or the reverse for drinking purposes. As already alluded to, these salts possess great advantages when present in due proportion in regulating and controlling the metamorphosis and growth of tissues. Potash, soda, lime, magnesia, iron, sulphates, and chlorides are essential constituents of our bodies. If not present in sufficient quantity in our food and drink, they must be supplied as medicines. If, on the other hand, they are present in excess, or in undue proportion, irritation of the system results. Various mineral springs have often their use in removing from the systems of those whose sedentary lives, or excessive indulgence in food, have rendered their blood overloaded with effete matter. Others again supply material which has been wanting in an assimilable form. Thus it is seen that a water may be too free from inorganic salts—as some have supposed that to be which supplies the city of Glasgow. It is drawn from Loch Katrine, and contains only a small proportion of earthy matter. Or, again, magnesian salts may be overabundant, as in the water supply of Paris. Those who have tasted it will recall how inefficient it is to quench thirst. Or, like the waters of the Croton or Cochituate, such a proportion of chlorides may be present as to irritate the kidneys and bowels. The effect of a carbonate of lime water in producing diarrhœa with those unaccustomed to its use, is also known to all. The presence of chlorides is also dangerous if the water be conveyed in leaden pipes, as minute quantities of lead are dissolved in it, through their action, while the insoluble sulphate of lead, which soon forms from our Schuylkill water, for instance, constitutes an impermeable safeguard against this danger.

Our best guide as to what is the best proportion of these mineral ingredients is an enlightened experience.

APPLICATION TO THE CITY'S SUPPLY.

We come now to the application of the above facts to the consideration of the water supply of Philadelphia. With a population of nearly one million of souls, eighty million gallons daily is our present need. But estimating the probable increase of the city in the near future we shall soon need one hundred and twenty millions daily. Nor is the present condition of our supply reasonably satisfactory. We have been threatened in summer with water famine. The present works are tasked to their full capacity, and the water flowing through our mains is frequently muddy. This condition of affairs is largely due to the delay in erecting the large subsiding reservoirs which have been time and again recommended by the various engineers and others who had have charge of our water supply. To give the reasons for this delay hardly comes within my province; but I think it a worthy subject of earnest congratulation that at length there is a prospect of the East Park and Cambria Reservoirs being pushed forward to speedy completion. More are needed, as when these are added to those already existing we would only have storage capacity for ten to twelve days' supply. When an opportunity has thus been afforded for subsidence of the earthy impurities, much, if not all, reasonable complaint of its occasionally muddy character will have disappeared.

If, as I have endeavored to show, large cities should depend mainly on large streams or rivers for their supply, we should then have to choose between that furnished by the Delaware and Schuylkill, or upon supplies furnished through long aqueducts. The latter are not to be regarded as favorably as the former, other things being equal, from a sanitary point of view. In this matter we may learn a lesson from the experience of New York and Boston, The influence of sunlight and air upon the water are wanting in this mode of transmission, and the result is sometimes a deterioration in quality. Long aqueducts also entail heavy expense, both for construction and repair. They are necessary when no better means can be devised. But how much better it would be should the city of Philadelphia control the whole watershed of the Schuylkill—accumulate in suitable storage reservoirs upon its larger tributaries a sufficient supply to meet any emergency, and utilize Nature's purifying processes of aeration and subsidence in its whole length. Dams could be constructed, and streams such as the Upper Perkiomen impounded and and their contents released into the river as occasion demands, or the water could be brought directly by gravitation into the Cambria reservoir through an aqueduct, if this should be deemed advisable. Ultimately this aqueduct could be extended to the Upper Lehigh region, or a short tunnel could bring water into it from the Tohickon, and an increased supply obtained thence.

Such would be the possibility of a good and sufficient supply for our city in the distant future. But in the present and immediate future, the supply which could be drawn from reservoirs and storage dams thus constructed on or near the Schuylkill would be ample and of excellent quality. On this latter point we have the testimony of chemists who have examined the waters both of the Schuylkill and Delaware. While the former is, indeed, rich in mineral matters, the latter has a larger amount of organic matter. The abundance of lime sulphate in the Schuylkill has been alleged as a disadvantage. This I have tried to show is a mistake. Owing to the source of this lime salt, *i. e.*, the water of the upper Schuylkill being charged with acid water from the coal-mines, coming in contact with the lime-stone water above Reading, a precipitation of sulphate of lime occurs which carries with it much of the impurities contracted above. Thus, an explanation is afforded of the statements of Colonel Ludlow and Professor Leeds, that the river is found in its best condition near Phœnixville.

Objection has also been made to the Schuylkill water on account of the increase in the amount of these earthy salts, which has corresponded with the development of coal-mining in the Schuylkill region. But already a change has begun in this respect, and the water seems to have attained the maximum amount of such change: owing to the active mining operations having been transferred from the Pottsville coal field to those lying to the west and north. The same causes may hereafter affect the Lehigh and Susquehanna. Another, and at first appearance a more serious objection, has been made to the Schuylkill as the source of our supply, the much denser population now inhabiting the basin of the Schuylkill than that of the Upper Delaware. This, however, seems to me to be more specious than real. The population of the Schuylkill has, owing to the stimulus of the coal and iron industries, reached a point approaching its maximum, and, as these are developed elsewhere, the future increase will be relatively small. Such as it now is, mainly congregated in the cities of Norristown, Phœnixville, Reading, Pottstown, and Pottsville, sewage works can readily be established, which will effectually free the river from contamination from this source. When we think, on the other hand, of the factories and furnaces scattered along the Lehigh, of Easton, Bethlehem, Mauch Chunk, and the rapidly developing industries of that region, to say nothing of the other towns and cities on the Delaware, I think it must be evident that nothing less than an aqueduct to bring water from the Delaware above the Water Gap can meet our wants, even were the water there proved to be as good and potable as that which now flows by us at Fairmount. As a matter of fact and experience it should be remembered that the much abused Schuylkill water has been found adapted to their varied uses by the large manufacturing establishments which have made this city the great manufacturing city of the world. So much for its adaptedness to manufacturing purposes.

THE SCHUYLKILL'S ADVANTAGES.

My proposition then would be, that the city should acquire and retain control of the whole Schuylkill watershed for the purpose of securing in perpetuity a good and sufficient water supply, and erect such storage dams and reservoirs as would allow of proper aeration and subsidence and the maintenance of a good quality and quantity at all times. And that there should be a warden or wardens of the river appointed, whose duty it should be to secure the stream from pollution. in its whole length from Fairmount pool up.

This plan of utilizing the Schuylkill basin would therefore have the following merits:

1. It would not cost any great immediate outlay.

2. It would be immediately available.

3. It would yield an abundant supply.

4. It would be a financial advantage to the city.

5. A warden of the Schuylkill could be appointed to insure the freedom of the stream from pollution. Such an officer could be created by the Legislature, or under existing laws the city could appoint commissioners whose duty it should be to secure this object. But in order to do so all sources of pollution coming from within its own domain must be removed. The intercepting sewer must be completed and used, and other like means adopted.

In the future the main pumping should be at Flat Rock, saving twenty-two feet elevation. This alone would soon save cost of transference of the works from Fairmount Park, or the erection of new pumping machinery, the present plant being allowed to remain to fill the Fairmount reservoirs and for subsidiary uses, such as for flushing streets and sewers and in case of fires. The early completion of sufficient storage and subsiding reservoirs is to be looked upon as demanded alike by all the plans hitherto proposed; and we cannot be too earnest or active in hastening their construction. There would then be no difficulty should the city possess control of the water power of the Schuylkill in filling these by pumping by water—while the river is high — which would prove a great source of economy.

In support of the views above stated as to the effect of aeration and subsidency, I would refer to the report of Colonel Ludlow on the future water supply of the city, and the results obtained by him from the analyses made by Professor Leeds. While he does not recommend the Schuylkill, but on the contrary maintains that the water from the Wentz farm, or the South Mountain plan, or the upper Delaware is better, yet he acknowledges that the water taken near Phœnixville "represents the Schuylkill at its best," *i. e.*, after the natural processes of aeration and subsidence to which I have called your attention; and that it is a good water. One of the samples of Schuylkill water analyzed for Colonel Ludlow, in which the ammonia was so remarkably high, was obtained, I am told, in the afternoon from a pool in which a herd of cattle had been standing all day! One such fact is ample to point to the necessity of such an officer as I have proposed, whose duty it should be to see that no fouling of the stream, whether by human or other animal excretion, or by factory refuse, should be allowed. When this is done, and subsidence reservoirs provided, there will remain no reasonable cause of complaint of the supply from our noble and beautiful river.

What more or better can be said of it than that the city of Philadelphia has thriven upon the water supplied from it for one hundred years—steadily increasing in health and prosperity? Our annual death rate is lower than that of any larger city except London; and, so far as I am informed, our manufacturers, even in spite of its alleged hardness, desire no better quality than it now affords. Except for the *preventible* sewage contamination, such as I have alluded to, there is, in my belief, as based upon our long experience and the results of chemical analyses of Professors Boyé, Booth, and Garrett, and even those of Professor Leeds, no better supply to be had, or that need be desired.

THE EFFECTS OF EXCESSES ON THE MINDS OF PROFESSIONAL AND BUSINESS MEN.

BY THOS. F. RUMBOLD, M.D., OF ST. LOUIS, MO.

THERE are many professional and business men, who suffer from a constant desire for change and excitement, from irritability of temper, from inability to hold the mind continuously on a definite subject, from mental and physical weariness, from forgetfulness and a state of mind that tends to waver or jump from one trifling subject to another. The causes of these mental and physical ailments are solely due to the effects of excesses, but are almost universally laid to close and long continued application of the mind. No doubt this is many times the case, but not as frequently so as some suppose. My observations have led me to believe that these symptoms are far more frequently the results of excesses and of colds, than of close mental occupation. Catarrhal inflammation of the nasal passages is more frequently the cause of these symptoms of "brain exhaustion," as they are sometimes called, than is credited to it. As this inflammation is many times a painless complaint, the sufferers are entirely unconscious of its existence. If they do know it, or suspect it, they usually consider it a trifling matter, being long accustomed to slight attacks of cold in the head, which they have observed pass away without producing serious illness. Their expressions about their conditions are usually: "It's nothing but a cold, it will soon pass off," and such like. Besides neglecting their colds year out and year in, they disregard the laws of health by indulging in the use of tobacco and stimulants, thus increasing the congestion of the mucous membrane of the nasal passages and throat, which in turn has its effects on the brain, lungs, heart and stomach. Whether the nasal inflammation has the ultimate effect of producing hyperæmia of the brain, or whether this condition comes from what is called, reflex action, I am not prepared to say, but I do know that brain disturbances very frequently follow such an inflammation. At the same time, these victims of excesses are taxing their weakened brain (which is now becoming sensitive because of the hyperæmia) to its utmost extent in attending to business. Not that their business requires more brain power than usual, but that their brain is not now equal to their usual business.

Show me the man who has indulged in the use of tobacco and stimulants, even moderately, from his fifteenth to his fiftieth year of age, and I will show you a man who frequently complains of being exhausted while he is attending to his business; he will also complain of the other mental ailments mentioned, and will require long vacations. If to these troubles he has added other diseases, acquired through immoral practices,—which are also partly the results on the mind of the use of tobacco and stimulants, the tobacco through its depressing effects, begetting a desire for stimulants, and stimulants, venereal excesses—his cup will be full to overflowing. When such a man does break down, he is far more disabled mentally than physically. Show me the man who has not committed these or other excesses, and has been careful to avoid taking colds, and I will show you a man who does not require a vacation, except from 9½ P. M., to 6½ A. M. next day. He will be good for a full day's work, every working day until he is seventy years old, and when he breaks down it will be from natural physical decay, rather than from mental debility; his mind will be clear and active. A marked contrast to the closing days of the man of excesses.

A man who does not commit these excesses does not complain of being unable to get his business off his mind at bed time. When he retires for the night, he sleeps soundly, and is completely rested, after which his brain is ready for another hard day's work. He has no disease to maintain an unusual quantity of blood in his brain, which is the sole cause of sleeplessness. With him as with other healthy persons, the usual normal proportion of blood leaves his brain when he goes to his bed for rest, so that sleep is possible.

It is the man whose brain is made in such a hyperæmic condition, through inflammation and excesses, that he cannot attend to business, and is unable to sleep soundly. In other words, he cannot sleep for the reason, as he says, that he has not sufficient command of his mind to withdraw it from his business, yet when he is in his office, he has not sufficient control of his mind to hold it on his business, plainly showing that it is not on account of attention to business, as said by almost every physician, but to other causes that prevent sleep; namely, a diseased condition of the brain, preventing the normal decrease in quantity of blood in the brain that is a prerequisite to healthful sleep.

"Oh!" says some one to a forty-five-year-old merchant, who both smokes and chews tobacco inordinately, and drinks whiskey daily, "you have applied yourself so constantly and so long to business that you have exhausted your brain; you are neurasthenic, sir."

This is not the whole truth, or, rather, it is an incomplete statement of the case, consequently the information given is erroneous, but, worse than that, it is dangerous.

That his brain is exhausted is evident from his inability to use it as he formerly had done, but while this incapacity to attend to business demonstrates exhaustion, it does not prove that it is the cause of exhaustion.

If I should see a farmer who lives in a malarial country, and whose whole system is broken down by daily attacks of intermittent fever, fail to follow his plow, I could as truthfully, or rather as correctly, say: "My dear fellow you have plowed your farm for these fifteen years; it is too much for you, your muscular system is exhausted, sir." That this farmer's muscular system is exhausted is evident from his inability to attend to his daily work; but does this weakness demonstrate that his work is the first cause of his disability? Far from it.

Are the muscles of the farmer exhausted by the plowing, or from malarial fever? Is the merchant's brain exhausted by the attention to business, or by other congesting agencies? It is very important to these two invalids that they receive a full, as well as a correct answer to these questions. It is just as evident to me that the farmer's muscular weakness is not due to plowing, *per se*, as it is that the merchant's mental weakness is not due to his attention to business, *per se*, and in the latter case it is due to the results from indulging his animal appetites to such an extent that his brain suffers secondarily.

A large percentage of patients of this class have voluntarily stated to me, that they had feared that the use of tobacco and stimulants had much to do with their inability to attend to business, but not being informed of their injurious effects, and having acquired a confirmed taste for them, and seeing their medical adviser, as well as other medical men of renown addicted to the same excesses, they continued their habits and frequently endeavored to drown their troubles by still greater indulgences.

With a few exceptions these invalid business and professional men would have desisted at once from these excesses if they had been correctly informed of the cause of their infirmities. This is the reason why I say that the physician who informs his patient that attention to business is the sole cause of his brain exhaustion has given dangerous, as well as erroneous advice, because it is an incomplete statement of his case.

If a business man observes that his mind is clear and quick when his head is in a normal condition, and that it is dull, cloudy, and slow when his head is affected by a cold, or in damp weather, or after he has partaken of a wine supper, and smoked inordinately, he may rest assured that these symptoms of mental disability demonstrate plainly that they result solely from inflammation in his nasal passages and the cavities connected with them, and not from continued application of his mind to any subject.

It is well known when the brain performs its functions,—that is, carries on a train of thought—this act in itself induces a greater flow of blood to it than there would be were it in a passive condition.

Even the mental exertion involved in computing as simple a calculation as $2 \times 2 + 2 - 2 = 2$ occasions some degree of hyperæmia, but when the calculations are complex, and involve numerous conditions, the degree of hyperæmia must be far greater.

It is evident that if a brain is made hyperæmic by disease, as is done by chronic catarrhal inflammation, before commercial calculations and care are undertaken, relief from mental exertion would be beneficial as desisting from following the plow would be beneficial to the farmer spoken of; but it is also quite evident that relief from malarial influences in the one instance and the congesting agencies, in the case of the merchant, such as repetitions of colds, resulting from the use of tobacco and stimulants, etc., that induce and maintain an abnormal flow of blood to the brain, are far more important matters.

I will answer a few questions that I conceive might be asked of me at this stage of the argument, namely:

Is it not well known that there are professional and business men who do not commit the excesses spoken of here, yet are troubled mentally, as are those who do commit these excesses?

Every individual that I have seen that has been afflicted mentally, as are those who have been addicted to the excesses mentioned here, has some brain trouble. It may be called hyperæmia, which I prefer, or inflammation. The cause of this brain trouble may not always be the result of excesses nor always from inflammation of the nasal cavities, but in very many instances, to my certain knowledge, it is from these causes. I ask, why is it not the most likely place to produce just this kind of disease?

These cavities and the sinuses connected with them are situated immediately under that portion of the brain that performs the mental functions. They are separated from it by a very thin plate of bone, and are very intimately connected with it by blood-vessels and numerous nerves. As most of the blood-vessels in these chronic cases have for many years been congested to such an extent that they are from 20 to 100 times their normal diameter, the nerves of this neighborhood, as well as other nerves connected with them, that have a great influence on the whole system, must be affected in the same proportion, and they in turn have marked effects on the function of the organs to which they are ultimately distributed.

That this is true is attested by the symptoms of every person who suffers from catarrhal inflammation of the nasal passages, and prominent among these dangers is that of the disposition. It is a very frequent occurrence for such persons to exhibit great irritability, discontent, and dissatisfaction without apparent cause other than the nasal inflammation.

It is well known that a chronic

complaint affecting any one of the extremities has the effect of producing an irritability of the disposition. How much more likely then will a long continued inflammation, situated immediately under the anterior portion of the brain, produce a change in its function, the mind. Show me the man who does not have this inflammation and I will show you a man whose mind is normally clear.

Is there any person who is mentally affected and has healthy nasal passages?

There may be—I do not say that there is not—but I do say that I have not seen him.

Does it follow that every man who has a normally clear mind is also perfectly healthy in his nasal cavities?

Not any more than it follows that every man who passes in a rapid gait before your door is perfectly healthy. Some one of them may be attacked by sickness or even may die before night.

Does it follow that every man affected by nasal inflammation must have some of the same mental disability that professional and business men have who are addicted to excesses?

Not any more than that every man who has been shot through the body, the brain, or the heart will die; but most persons with nasal inflammation are so affected mentally, and most persons thus shot die therefrom.

Does it follow that any man may be affected seriously mentally by apparently a slight nasal inflammation?

Yes, just as some persons are killed by trifling accidents.

Are there not a large number of men who commit these excesses, apparently as healthy as those who have not committed the excesses?

It is well to use the words "apparently healthy" in this question, for no such person can be healthy. It takes a longer time for these excesses to injure some than it does others; but every person, without exception, is injured by them when their use is continued long enough.

Questions like these usually come from young men. I do not say young men as though it was a crime to be young, but because such inquiries are the expressions of these inexperienced individuals. That men are apparently healthy while addicted to excesses, is to them a guarantee that they may also indulge in the same excesses with impunity. Their statement of these apparent facts, pointedly indicate that they want a good excuse to continue habits that at the present time are a pleasure only.

Who hears of these men after they have broken down from the result of excesses? Perhaps not more than one in fifty of them are known to the public, yet this one, in all probability, has done more harm in one month, to young men, by his pernicious example and his ability to appear uninjured by his excesses, than he can correct by his daily regrets expressed during the last few years of his wretched life. It is the active, the apparently healthy, that are heard and seen; they are pointed to as proof of the harmlessness of excesses; the mentally and physically wrecked ones are out of popular sight and hearing.

STATE BOARD OF HEALTH OF PENNSYLVANIA.

FIFTH REGULAR MEETING.

The fifth regular meeting of the Board of Health was held at Harrisburg, Wednesday, November 10, 1886, in the Supreme Court room, Capitol building.

The meeting was called to order by the president, Dr. Ed. Wm. Germer, at 12 M.

The secretary presented a preliminary report, in which he gave a résumé of the work thus far accomplished by the Board. The report was accepted and ordered to be included in the annual report of the board.

The various items of the secretary's report were then separately considered as follows:

1. A history of three simultaneous epidemics of typhoid fever, occurring in different parts of the State,—one at West Elizabeth, one at South Pittsburgh, and one at Glasgow, including detailed histories of cases treated by Dr. McGrew, of West Elizabeth, and a history of the Glasgow outbreak by Dr. Thomas J. B. Rhoads, of Pottstown. The several papers were on motion accepted and referred for publication in the annual report.

2. The correspondence between the secretary, the State Board of Health of New York and the Board of Health of Philadelphia on quarantine against small-pox. Referred for publication.

The Board then took a recess until 2 P.M.

SECOND SESSION.

The Board reassembled at 2 P.M., Dr. Germer presiding.

The reading of the secretary's report was continued as follows:

3. Report of an inspection of the Bedford County Almshouse by Dr. R. Lowry Sibbet, medical inspector to the Board, accompanied by correspondence with the Board of State Charities This report showed the existence of a most dangerous and disgraceful condition of things in that institution. On motion the report was referred to the Executive Committee for publication, and, on motion of Dr. McClelland, the following resolution was adopted.

Whereas, The inspecting officer of this Board reports an unsanitary and disgraceful condition of affairs existing in the Bedford County Almshouse; therefore,

Resolved, That the executive officer of this Board be directed to institute proceedings, either directly in the name of the Board, or through some other appropriate official channel looking to the abatement of the same.

4. A complaint of an offensive slaughter-house at Mt. Oliver, Allegheny County. A notice to abate had been served on the proprietor, and the inspector of the district, Mr. L. H. Hunter, had verbally reported to the secretary that the order had been complied with. Referred for publication.

5. A complaint of a slaughter-house at West Newton, Westmoreland County.

6. Report of Medical Inspector Wm. B. Atkinson, M.D., of an inspection at Rosemont, Montgomery County, the village which witnessed summary measures on the part of the Board last year in order to abate a nuisance which was the cause of typho-malarial fever. The report showed a greatly improved condition of things, and little or no annoyance or ill-health at present. Referred for publication.

7. Report of Wm. B. Atkinson, M.D., medical inspector, on a bone-boiling establishment at Limerick, Montgomery County, ignoring the complaint as a cause of sickness.

8. Complaint of nuisances in the shape of slaughter houses and a fat-rendering establishment at Braddock, Allegheny County, with report by Inspector L. H. Hunter and order for abatement. The secretary stated that he had visited the town personally and found a condition of affairs which seriously jeopard-

ized the health, not only of the residents of Braddock, but of all towns lower down the river, (the Monongahela,) and of Pittsburgh. The nuisance consisted of six or seven slaughter-houses and a bone-boiling establishment directly on the bank of the river, having shutes for their offal, which deposited it in high water in the stream, but in low water on the bank, where it was left to decay. The river at this point, owing to the navigation dams, is almost entirely without current, so that a strong wind up the stream could easily create a current in that direction and pollute the water at the intake of the borough water works a few yards above. The bank of the river, a low beach, bounded by a high, steep embankment, was literally paved with entrails, offal, and carcasses in every stage of decay and putrefaction for a distance of a third of a mile, and the effect upon the purity of the stagnant water can readily be imagined. The secretary had left the matter in the hands of the solicitor to the borough council, who was to keep him informed as to the result.

The report and the remarks of the secretary were referred for publication.

9. A complaint of defective drainage at Blairsville, Indiana County, with report of inspection by Dr. L. R. Rutledge,showing that the nuisance had been to a great extent abated by the action of the borough authorities in opening drains, but suggesting the importance of an underdrain. Referred for publication.

10. Complaint of pollution of Towanda Creek by the tannery of Proctor & Hill, with report of inspection by Medical Inspector E. D. Payne. Referred to the committee on the water supply, drainage, etc., for opinion and advice.

11. Report of an epidemic of small pox at Emporium by Dr. R. P. Heilman, attending physician. Referred for publication.

12. Report of an inspection of the water supply of Allentown, made in consequence of an epidemic of typhoid fever, at that place by Medical Inspector Wm. B. Atkinson, M.D., showing danger of contamination to the water.

13. A communication from the borough council of Centralia. Referred.

14. Report of an inspection of the water supply of Bethlehem made in consequence of cases of typhoid having been prevalent in that borough, showing that all needed precautions are taken to protect its purity. Referred. Inspection made by Medical Inspector Atkinson.

15. Admonitory communication addressed by the secretary to the borough council of New Castle, Allegheny County, in reference to the importance of constructing a sewer to correct the defective drainage of that place. The secretary was glad to be able to state that the advice had been acted upon and the sewer was now nearly completed. Referred for publication.

16. Report of the inspection of the Lakeside Hotel, at Eaglesmere, Lycoming County, made by Medical Inspector E. D. Payne, in consequence of the reported occurrence of a case of typhoid fever in the house.

Referred for publication.

17. Report of an inspection of drowned land in Exeter and Wyoming boroughs Luzerne County, caused by the drainage of the Schooley shaft, made by David Engelman, M.D., a member of the board, with recommendations for the abatement of the nuisance. The report was accepted and referred for publication, the recommendations adopted, and the secretary instructed to carry them out.

18. Report of the delegates to the American Public Health Association. The secretary reported that the board had been represented at this very important meeting at Toronto, October 4 to 8, by three of its members, the president, Dr. Engelman, and himself. The sessions were of great interest, and private citizens vied with the committee on arrangements and the civic authorities in contributing to the pleasure and comfort of the members. The question of the expediency of the construction of an intercepting sewer for the city of Toronto being before the people for decision, and the opinion of the association having been sought by his Honor the Mayor, the secretary of this board had offered the following resolution: "*Resolved*, That in the opinion of this association, the construction of an intercepting or trunk sewer is a sanitary necessity to the city of Toronto;" which after slight modification by the advisory committee was unanimously carried. The most important action of the association was the adoption of a series of rules in reference to interstate notification of the existence of infectious and contagious diseases. These rules were first adopted by the national conference of State Boards of Health, afterwards modified by the advisory council, and then adopted by the association. On motion, the report of the delegation was received and referred for publication.

The rules as read by the secretary were then formally adopted as a regulation of the board and ordered to be spread upon the minutes. They are as follows: (Having appeared in the last issue of the "Annals" it is unnecessary to reproduce them here.)

19. On behalf of the same delegation in attendance upon the National Conference of State Boards of Health, the secretary reported that in obedience to the resolution of the board at the last meeting he had requested Dr. Granville P. Conn, the secretary of the conference, to have the subject of "uniform regulations for the transportation of corpses" placed upon the programme for discussion at this meeting, and that gentleman had, under a misapprehension, announced him as to read a paper on the subject.

Dr. Edwards, chairman of the committee on travel and traffic, had the subject referred to him at the last meeting, with instructions to address a letter of inquiry to the various boards of health of the United States and Canada, asking what regulations, if any, had been adopted in their respective States. Replies had been received from twenty-one States and in twelve of these rigid regulations had been adopted. These replies were forwarded to the secretary by Dr. Edwards at Toronto, but owing to a delay in the mail failed to reach him in time to enable him to present a paper. He, however, introduced the subject in a few remarks and moved the adoption of the rules suggested by the representative from Michigan and spread upon the programme. These were referred to a committee, of which your secretary was chairman. This committee reported the rules with certain modifications, but after considerable discussion the subject was laid upon the table. There are therefore now no uniform regulations on this subject in the United States. As it was, in his opinion, a subject of great practical moment, the secretary suggested that the board proceed to the discussion of the question. On motion, the subject was postponed, to be taken up in the place assigned to it in the order of business under the head of unfinished business.

20. The secretary desired to call attention to a very important charge of Judge Ewing, of Pittsburgh, in a case involving the right of the board of health of the city to remove a child ill with small pox from the house of its father.

Suit had been brought against the board, but the charge was clearly in the favor of the defendant and the jury rendered a similar verdict from which no appeal was taken.

21. The secretary also presented an opinion of Thomas McFarland, Esq., attorney to the Pittsburgh Board of Health, on the powers of local boards of health and of the State Board of Health in certain relations to municipal authorities. It was ordered that both of these opinions should be embraced in the annual report to the Governor.

22. The secretary then read a report of a sanitary conference held in Pittsburgh, October 11th, between himself and members of the Board of Health of Pittsburgh, Allegheny, and neighboring towns and other gentlemen interested in sanitary reform, in consequence of their official position. The conference had been of much interest, and had promoted a sense of mutual reliance and good will among the participants. The report was accepted and referred for publication.

23. Report of an inspection made at the State Reformatory at Morganza by Dr. R. Lowry Sibbet, Medical inspector and the secretary, with a view of determining the cause of an epidemic of continued fever in one of the buildings of that excellent institution. Referred for publication.

24. Report on defective drainage at Bristol, Pa., similarly referred.

The Board then on motion adjourned to meet at 7.30 P.M.

THIRD SESSION.

The Board reassembled at 7.30 P.M., President Germer in the chair.

The first business in order was the report of the executive committee, Dr. Pemberton Dudley, chairman, which showed that the committee had audited bills to the amount of $1831.10, comprising vouchers Nos. 85 to 116, inclusive. The report was accepted and approved.

On motion the by-law fixing the time for the Spring meeting was suspended and it was ordered that the meeting be held at Harrisburg at such a time as the executive committee may designate.

The Commiitee on Registration and Vital Statistics, Dr. Benjamin Lee, chairman, reported that as it was a matter of some doubt which law ought to be amended in order to provide remuneration for the registering officers, he had thought it wiser not to carry out the instruction of the Board in reference to amending the law creating it. He reported progress.

The chairman of the Committee on Preventable Diseases being unavoidably absent, there was no report from that committee.

The chairman of the Committee on Water Supply, Drainage, Topography, and Mines, Mr. Rudolph Hering, presented portions of two reports on a source of water supply for Philadelphia and on the sanitary survey of the Delaware and Lehigh Valleys, which had been prepared for the Philadelphia Water Department, but were of such general interest to the State as to make them appropriate for the consideration of this Board. On motion they were ordered to be published in the annual report.

Dr. McClelland, a member of the same committee, reported that a commission had been appointed to consider the adoption of a comprehensive sewer system for the large territory known as the East End of Pittsburgh, now almost wholly destitute of such facilities, and suffering seriously in the health of its residents in consequence, and to report a plan for the same to the city councils.

At the present time the opinion of the commission appeared to be that no one particular system or scheme would meet the requirements of so large an area with so diversified a surface, but that the system to be adopted would need to comprise the best features of several systems. On motion it was resolved "That the State Board of Health learns with pleasure of the appointment of a commission to recommend a system of sewerage for the large and populous district known as the East End of Pittsburgh, regarding its early and proper sewerage as of vital importance to the health of a large body of the residents of that city."

Dr. McClelland as chairman of the Committee on Public Institutions and School Hygiene reported that decided improvements were visible in recent school architecture from a sanitary point of view.

The reports were accepted.

The Committee on "Adulterations, Poisons, and Explosives, and other sources of danger to life and limb," reported, through its chairman, Dr. Pemberton Dudley, that no work was possible in that department without the expenditure of money, and the appropriation allotted to the Board was too meagre to allow of such expenditure. The report was accepted.

Dr. David Engelman, chairman of the Committee on Sanitary Legislation, Rules, and Regulations presented a copious report consisting of a digest of the laws of the Commonwealth on all subjects relating to the protection of life and health, apart from those relating to criminal assaults.

The report was, on motion, referred back to the Committee for completion, and the thanks of the Board presented to Dr. Engelman for its preparation.

The report of the secretary as treasurer was then read, showing a balance in the treasury, October 1st, of $330.18.

Vouchers 85 to 116, which had already been audited by the Executive Committee, were appended to the report. The report was accepted and the vouchers allowed.

The secretary reported the number of written communications received by him during the year to have been nine hundred and fifteen (915), the number of similar communications sent by him to have been one thousand and sixty-three (1063). The number of volumes purchased for the library of the Board has been eighteen (18). The number of volumes presented to the Board during the year has been two hundred and three (203), and the number of pamplets presented has been fifty-three (53). A catalogue of books and pamphlets added during the year was appended to the report. Also a list of stationery received upon requisition, and of printed matter received from the Superintendent of State Printing.

Unfinished business being in order the subject of the transportation of corpses was taken up and a series of regulations governing the transportation of dead bodies, and especially of such as have died of contagious infectious diseases was considered and adopted as a regulation of the Board.

New business being in order the secretary presented a series of plans and suggestions for the construction of a county almshouse on sanitary principles, prepared at his request, by Dr.

R. Lowry Sibbet, Medical Inspector for the Cumberland District. On motion the paper was accepted and referred for criticism and suggestion to the Committee on Public Institutions.

On motion the Board then adjourned, *sine die.* BENJAMIN LEE, Secretary.

A PLEA FOR MORE PROLONGED ISOLATION IN THE MANAGEMENT OF SCARLET FEVER.*

BY W. W. VINNEDGE, M.D., OF LAFAYETTE, INDIANA.

IT is taken for granted that we are all of one mind as to the desirability of imposing some artificial check on the spread of scarlet fever. Most of us are convinced that its only source of reproduction is an infecting material from the sick room conveyed in some way to the unaffected. All of us know that children are its chief victims, and, that it is a distressing and frequently a dangerous disease.

There is much diversity of opinion among public health officials as to how long a time scarlet fever patients should be isolated, and, whether in mild attacks of the disease, the cases should be isolated at all. Even among some physicians there is much uncertainty as to definite indications of the duration of infectiousness, and naturally the sick are frequently permitted to mingle with society too soon for public safety.

Few persons would hesitate to separate a child with sore throat, strawberry tongue, fine red rash, and a high temperature, from his companions or schoolmates, and to keep him carefully isolated throughout the fever stage, and perhaps a little longer; but during later convalescence separation would, in many instances, be so uncertain and imperfect that it would have little if any value as a protection to the susceptible. In mild cases of the disease, not sufficiently marked to cause anxiety or to oblige the patient to be placed in bed, the parents would sometimes probably be unwilling to practice isolation, especially if the father's business might be injuriously affected by a publication of the disease in his family.

The welfare and safety of the family of the daily laborer who reads but few if any books during the year, requires, as far as possible, that he be accurately informed as to the propagation of this disease, as well as have a practical knowledge of the means used for its prevention. He should be taught in simple language, that "in this disease as in small pox, the poison is given off from the bodies of the sick, and is not reproduced independently of them,"* and that "it is propagated by a peculiar poison, which by reason of the tenacity with which it adheres to articles of clothing, and other peculiarities, we have good grounds for holding is a solid."† It should be made plain to the least informed that there is no knowledge of any means of protection against the spread of the malady other than isolation, cleanliness, and disinfection. Teachers in the schools should inform parents and pupils that it is not sufficient to isolate only during the time of the fever stage,—or while the sick are confined to the bed or in-doors,—but that this means of prevention of the spread of the disorder should comprehend, in every case, all of the time from the beginning of the sore throat to the completion of the peeling process.

---

*Presented to the State Sanitary Convention held in Philadelphia, May 12, 13, 14, and in the absence of the author was read by title and referred for publication. From advance sheets of annual report.

* Prize Essay, A. P. H. A., p. 133.

† Barthalow.

Frequent trustworthy reports of the spread of the infection having been traced to milk, admonish that dairymen and their families and employees be required by the authorities to practice greater cleanliness and a more prolonged isolation in the presence of this disease. Dairymen need instruction rather than discipline; they disregard the rules of public health from lack of sufficient information rather than from other reasons.

Since there is no knowledge of any means of protection against the dissemination of the infection, other than isolation and disinfection it is of the utmost importance that the intelligent use of these be well understood by the public.

It is not claimed that the period of infection of this disease can be determined by days or weeks, but it is believed that this can be determined with sufficient accuracy for sanitary purposes by the characteristics of the disease in its beginning and ending. The safe rule to be taught, particularly in the sick room, is that scarlet fever is contagious from the first appearance of the disease in the throat to the end of desquamation in the palms of the hands and the soles of the feet.

Since we have no prophylactic to hinder the spread of this disorder, as vaccination hinders small-pox,—its restriction is almost wholly a matter of intelligence and unselfishness.

In Indiana the public authorities cause a yellow flag to be hung up in a conspicuous place on every dwelling in which there is a case of this disease, as a friendly notice to warn all of the presence of danger. "Those who are associated with susceptible children have no right under any circumstances to visit the room of a scarlet fever patient, without taking the most thorough precautions with regard to the disinfection of their persons and clothing immediately upon leaving it, and even with these precautions such a visit cannot be justified when it is made simply out of curiosity or friendship."

It is believed that a good deal of apparent carelessness on the part of the public is due to a misapprehension as to the termination of convalescence from this disease. Many consider the cure complete and the danger past with the disappearance of the rash or fever, or both, and the return of the appetite and natural sleep. Medical writers and teachers do not, according to the information the writer has been able to obtain, define this point with the greatest clearness and certainty; at any rate it is believed that it would be better for purposes of sanitation if utterances in text books on the subject were more direct, explicit and simple.

It has been stated heretofore that the reason the parents frequently fail to prolong isolation sufficiently,—that is, throughout convalesence,—is the absence of disability on the part of the patient; for the same reason that isolation is declined in doubtful or mild cases of the disease. This part of my subject can best be understood and illustrated by an example.

In an institution of learning near LaFayette, Indiana, attended during the past year by nearly four hundred young people of both sexes, an epidemic of scarlet fever made its appearance about mid-winter. One can readily understand the anxiety felt by parents, teachers and trustees for the welfare of the pupils and the schoolwork. However, the President of the University, under the advice and direction of the county health officer, rigidly enforced isolation and cleanliness, and the disease soon yielded to management and disappeared quickly. Forty students were ill. About the time the affected were all convalescent, it was noticed that A— B—. a young man, a student, boarding and lodging outside the school buildings, had a sore throat, but was not sufficiently ill to prevent him from attending recitations, or for that matter doing any work. Although he was unwilling, it was thought best for him to absent himself from his class for a time, and he left school to take temporary lodgings with a neighboring physician. The doctor thought the ailment "simply sore throat, and in the absence of fever and rash not contagious." Unfortunately the physician had a family, and in less than a week after the introduction of the ailing student into his house, his servant girl was seized with scarlet fever. In a note to me, under date of May 7, 1886, the kind hearted man briefly reports the case as follows:

"One severe case occurred in my family: An adult domestic, five days after exposure to one of the students who had previously roomed and boarded in Mrs. H——'s family, was seized violently with ulcerated and swelled throat, accompanied with the rash and fever. The disease was quite severe, and followed by a violent attack of acute mania, which lasted about a week. She had albuminuria also, and became anemic, and was confined to her bed about three weeks, when convalescence began and complete recovery took place."

This case helps to strengthen the evidence as to the infectiousness of slight cases of scarlet fever, and at the same time invests doubtful cases of throat disease during an epidemic of the malady with a good degree of importance. In view of the foregoing case, and of similar ones that will arise in the minds of practitioners of medicine who have kindly read these statements, it is of the utmost importance to isolate slight and even doubtful or suspected cases of this deadly malady.

For the purpose of further study and to suggest discussion of this important subject, I beg, in conclusion, to advance the following propositions:

1. That the infectiousness of scarlet fever begins with the commencement of the redness and soreness of the throat, and ends with the completion of the stage of desquamation; and that the duration of infectiousness is variable, being often delayed in cases having mild beginnings.

2. That in a sanitary point of view, it is unwise to make any distinction between slight and severe cases in the management of the disorder. Contact in either case will surely expose the susceptible to suffering and danger, if it does not cause death.

3. That in order to prevent the dissemination of the infection, it is utterly wrong to permit any scarlatinal patient whatever to mingle with the susceptible until the completion of the stage of desquamation. As a rule the peeling process is completed at the end of the sixth week of the disease, but in cases in which exfoliation is of late appearance, convalescence is not complete at the end of the tenth, eleventh, and not always at the end of the thirteenth week.

THE CAUSATION OF PNEUMONIA.*

BY HENRY B. BAKER, M.D., OF LANSING, MICH.,
Secretary of the Michigan State Board of Health.

Employing the data collected in the office of the Michigan State Board of

---

* Abstracted from the Report of the Michigan State Board of Health.

Health, relative to the sickness from pneumonia, and the coincident meteorological conditions in Michigan, more especially during the eight years 1877–1884, I find that certain meteorological conditions are so uniformly associated with sickness from pneumonia as to make it appear that they bear a causal relation to that disease. The atmospheric condition which is most closely associated with pneumonia is the night ozone; but although it is probably one factor, the manner in which it is associated does not indicate that it is always the controlling factor in the causation of pneumonia. And, besides, the amount of ozone is believed to be to a great extent controlled by the atmospheric temperature. Therefore I think ozone is not a primary cause. The velocity of the wind has rather close relations to the disease. Variations in atmospheric pressure appear to have some influence in the causation of pneumonia. Relative humidity of the atmosphere has apparent relations to the disease; but it also depends largely upon the atmospheric temperature. Absolute humidity of the air has very close relations to pneumonia, and in such manner as to indicate a causal relation. That condition of the air, however, is, so far as relates to outdoor air, almost wholly controlled by the temperature. Finally, the curves representing the average temperature uniformly bear a close relation to sickness from pneumonia; and the curves representing sickness from pneumonia follow uniformly at such a period after the temperature curves as to make it seem certain that the sickness is, directly or indirectly, caused by a comparatively low temperature.

Although these statistics are incomparably more valuable for this study than any others that have ever been collected, the best statistics which I have been able to collect, relative to sickness and deaths from pneumonia in different states and countries, agree substantially with the results shown by the Michigan statistics.

So far as the preceding statements go, the result is only to prove in a scientific manner the truth of more or less widespread beliefs since the time of Hippocrates. This placing of the old hypothesis upon a scientific basis, however, although it will, as I believe be accepted as a contribution to science, needs a further contribution to render it most acceptable; and that seems to be forthcoming. The difficulty in the way of accepting the hypothesis has been to understand how it is possible for cold to cause pneumonia. Thus Prof. Rindfleisch has said: "Even when, based upon some unequivocal observations, we have proclaimed the taking cold as the common cause [of croupous pneumonia], there has yet by this no insight been obtained into the process of taking cold. For what has the partial refrigeration of the outer skin to do with the inflammation of an interior organ?"*

The key to this "insight," which Prof. Rindfleisch has said is wanted, has for many years seemed to me to be the fact that the "refrigeration" is not so much of the "outer skin" (which is mostly covered with clothing), as it is of that inner skin,—the mucous lining of the lungs and air-passages, and which we are liable to forget is so extensive,—amounting as it does, according to Prof. Dalton, to about 1400 square feet of surface in an ordinary adult person.* We are also liable to forget that which appears to be true, that the regulation of body temperature is, partially at least, by means of the lungs. Holding these facts in mind, and also the further facts that the surfaces of the air-cells and air-passages are constantly moist, and that the air when exhaled is probably saturated with vapor water, and at a temperature of about 98° F., we realize that there is constantly being taken out of the body, from the air-passages and from the air-cells in the lungs, a considerable amount of vapor water. The quantity which *enters* the lungs with the air inhaled differs greatly according as the air is or is not saturated with vapor, and also according to the temperature at which the air is inhaled. At ordinary temperatures the capacity of air to retain moisture varies somewhat regularly with its temperature, the higher the temperature the greater the amount of vapor of water it may contain; thus, according to Prof. Guyot's tables, based upon experiments by Regnault, a cubic foot of air at the temperature of zero F., if saturated with vapor of water, contains ½ Troy grain; at the freezing point it contains 2 grains; at 70° F. it contains 8 grains; at 98° F. it contains 18.69 grains.† Thus it appears that the "absolute humidity" of the atmosphere is controlled, as to its maximum, by the temperature of the air. Cold air is always dry air, and when air is warmed, as it is in the lungs, the demand for water, to properly saturate it, is very great.

---

* Page 423 Text-book of Pathological Histology. By Dr. Edward Rindfleisch. Translated from the German by Drs. Kloman and F. T. Miles. Philadelphia. 1872.

It may thus be seen that when warm air saturated with vapor of water is inhaled, one effect is to lessen the passage of fluids from the blood into the air-cells and air-passages; when, on the other hand, the air inhaled is cold and dry, an increased quantity of fluids must pass from the blood into the air-cells and air-passages, in order to keep them in the normal moist condition. The fluid which constantly passes from the blood-vessels into the air-cells and air-passages contains some of the salts of the blood; and such as are volatile pass out of the body with the vapor of water exhaled at every breath; but such salts as chloride of sodium (common salt) will not readily pass off with vapor of water, the usual mode of preparing salt from the brine being by the evaporation of the water and the collection of the salt which remains. For many years it has been known that chloride of sodium, which is found in the urine of healthy persons, is absent during the onward progress of pneumonia, and reappears in the urine when the patient is convalescing. For several years I tried to secure such analyses of lungs of persons dead from undoubted pneumonia, and comparisons with the lungs of persons who did not have pneumonia, and such other comparative analyses as would show whether or not it was, as I supposed, that during the onward progress of pneumonia the chloride of sodium passed from the blood into the air-cells, and accumulated there because it did not as rapidly pass off as did the water of vapor.

However, we are not left to conjecture as to the course which chloride of sodium takes when during the onward progress of pneumonia it disappears from the urine. In Vol. XXXV. of the Trans. of the Royal Medical and Chirurg. Society of London, published in 1852, is a paper by Lionel Smith Beale, wherein he shows, by such analysis as those I have outlined, showing the chemical composition of the lungs, that chloride of sodium, which, during pneumonia disappears from the urine, does appear in the sputa and in the air-cells of the lungs at such times.

---

* Dalton's Physiology.

† Smithsonian Meteorological and Physical Tables, Guyot, p. 93, B.

At such times as pneumonia is most caused, there is then, as shown by the data which I have collected, an unusual demand upon the air-cells for fluids; their function in this respect is unusually taxed. Passing into the air-cells with the fluids are certain salts which do not pass out with the vapor, but accumulate in the air-cells. This is shown by a *priori* evidence and also by the analysis by Dr. Beale. The salt which accumulates is an irritant. It has been held that the extraordinary stimulation of an ordinary function of an organ or part of the body leads to the congestion and even inflammation of that organ or part of the body. If this be accepted, the causation of pneumonia is now perhaps sufficiently shown.

There are, however, certain facts concerning pneumonia, which, to my mind, can now be more fully explained than is done by the foregoing facts and considerations.

In quantity of fibrinous material exuded pneumonia appears exceptional. Changes in blood-pressure do not seem to account for all the facts concerning that exudate. The curve for atmospheric pressure does not seem to have uniform quantitative relations to pneumonia. Facts submitted herewith, show, however, that the daily range of the barometer has such close relations to pneumonia as to indicate a possible causal relation. I regret that I could only include the observations for three years, and they do not seem to be sufficient to make a steady curve.

It may be noted, in passing, that in albuminuria there is, as in pneumonia, an exudation of unformed material which is not subsequently organized. "Thus it will be seen from the appendix that renal disease figures largely among the pre-existing morbid conditions of the individuals enumerated." * He also says: "It appears upon calculation that pneumonia in kidney disease is most frequent in the so-called amyloid or waxy degeneration. According to Dr. Dickinson the marked tendency to inflammation which characterizes this change is seen most conspicuously in the lungs, and next most often in the pleura." †

I have shown how, through the inhalation of cold dry air, the exudation of fluids into the air-cells of the lungs is increased; and how, by the unusual evaporation of that fluid, an unusual quantity of the chloride of sodium accumulates in the air-cells. It remains to point out how, through the influence of that chloride of sodium in the air-cells, the exudation into them of the albuminous constituents of the blood-serum is probably favored. Perhaps this may be best shown by a quotation from a standard text-book on Physiology as follows:—Dr. Dalton says: "But a substance like albumen, which will not pass out by exosmosis toward pure water, may traverse a membrane which is in contact with a solution of salt. This has been shown to be the case with the shell membrane of the fowl's egg, which, if immersed in a watery solution containing from three to four per cent of sodium chloride, will allow the escape of a small proportion of albumen. Furthermore, if a mixed solution of albumen and salt be placed in a dialysing apparatus, the salt alone will at first pass outward, leaving the albumen; but after the exterior liquid has become perceptibly saline, the albumen also begins to pass in appreciable quantity."*

---

* Page 81, National History and Relation of Pneumonia, Octavius Sturgess, M. D., F. R. C. P., London, Eng., 1876.

† National History and Relations of Pneumonia. Sturges, p. 82.

It seems significant that the two organs in which an albuminous exudation occurs so markedly as in the kidneys and in the lungs should both be so constituted as that these facts relative to the exosmosis of albuminous substances should be applicable; because chloride of sodium is normally excreted by the kindeys, and as it passes by osmosis with extreme facility, the first beginnings of the urine in the Malpighian bodies would naturally be saline, so that when the blood is unusually saline the urine in the uriniferous tubules may be sufficiently saline to induce the exosmosis of albumen from the blood-vessels into the uriniferous tubules. But while this may occur in the kidney, one condition seems to make it more probable in the lungs, because in the lungs, through the constant evaporation of the fluids exuded, the salinity of the remaining portion is constantly increased. Is it any wonder then, that under the continuations of unusual evaporation there sometimes comes a time when the albuminous exudate fills a large proportion of the air-cells?

Whether or not the ultimate fibrinous character of the exudate in the lungs is due to the blood-plaques, or is a result of the oxidation of the albumen, otherwise induced, I will not in this abstract stop to discuss further than to refer, in this connection, to the fact that fibrinous casts are found in the kidney, and also, with reference to the oxidation, refer to my diagrams, which show such close relation between pneumonia and atmospheric ozone.

An albuminous or a fibrinous exudate is a favorable situation for the reproduction of micro-organisms. Whether or not in pneumonia there are uniformly such low organisms as the "pneumococcus" of Friedländer, the statistics which I present show that the causation of the disease is absolutely controlled by the meteorological conditions. The fact that one attack does not protect from another is evidence against its being a specific disease; while the fact that persons who have had pneumonia are more likely to have it again,† is more in favor of its causation in the manner I have pointed out.

Whenever the views which I present shall have been accepted, numerous questions are at once pertinent,—as to the diet most favorable to keeping the blood in the condition to best resist the tendency to pneumonia; as to the best methods of treatment of the person sick with pneumonia, whether by warm moist air, etc.; and especially as to how best to control the condition of the air inhaled by persons generally as to lessen the danger of their contracting the disease.

One lesson in this regard seems obvious, namely, the importance of securing proper moistening of all air which requires to be warmed,—in houses, offices, public buildings, and wherever such conditions of the air inhaled can be controlled.

---

* Treatise on Human Physiology, For Use of Students and Practitioners. John C. Dalton, M. D., Sixth Edition. Philadelphia, 1875, p. 363.

* Written about by Bizzozero, Heyem, Eberth, Osler, and others.

† Sturges.

Subscribe now for "The Annals" before you forget it.

THE ANNALS OF HYGIENE.

THE OFFICIAL ORGAN OF THE
State Board of Health of Pennsylvania.
PUBLISHED MONTHLY.

Subscription, two dollars ($2.00) a year in advance.
Address all communications to.

JOSEPH F. EDWARDS, M.D.,
224 S. 16th St., Philadelphia, Pa.

MEMBERS OF THE BOARD.

EDWARD WM. GERMER, M.D., Erie, President.
PEMBERTON DUDLEY, M.D., Philadelphia.
DAVID ENGLEMAN, M.D., Easton.
J. F. EDWARDS, M.D., Philadelphia.
RUDOLPH HERING, C.E., Philadelphia.
J. H. McCLELLAND, M.D., Pittsburgh.
BENJAMIN LEE, A.M., M.D., Secretary and Executive Officer, 1532 Pine St., Philadelphia.

Editorial.

PHARMACISTS AS SANITARIANS.

In all countries where hygiene and sanitary science are made a study and are recognized there are specialists who devote their time to these pursuits. What is necessary to qualify one for this important position, is a knowledge of health and the normal function of the body, also that of disease with its origin and course, together with a sound and practical knowledge of the natural sciences, botany, physics, chemistry, etc., in order to investigate causes influencing both the normal as well as abnormal conditions of life.

In this country there are but comparatively few who devote their time exclusively to this purpose, and while many of our medical men are called upon to study hygiene, there are perhaps few if any of them sufficiently acquainted with practical chemistry to undertake the solution of sanitary problems.

Analyses of foods, drugs, etc., are referred to expert chemists, whose charges prevent the masses from consulting them, and as a result, the ability of the individual to have such articles investigated for them, is very limited.

There has been, as we are informed, within late years a marked falling off in the trade of our pharmacists, largely owing to the failure of some of the trade, which must be considered as not strictly belonging to their legitimate calling. Patent medicines and toilet articles have sought other channels of commerce, and the revenues of the pharmacists are in consequence considerably diminished. Why should the pharmacist of this country not be the practical sanitarian? a sphere for which his training in chemistry, his surroundings and apparatus eminently point him out. Would it not be of greater advantage to him to analyze foods and other articles for a consideration, rather than to take up an unethical and base competition in trade with vendors of vile nostrums? If in our colleges of pharmacy sanitary science were taught, where the candidate for a degree could, inform himself not alone on the chemical analysis of air, water, and articles of food and clothing, but also on the proper construction of dwellings, outhouses, and drains, the graduate of pharmacy would certainly rise a considerable step in the estimation of and the utility for his fellowmen, and there is no doubt that the remuneration earned by such services would prove a greater boon to him than the evil results of cutting prices of patent medicines. Let it be known that pharmacists are practical sanitarians, and it will create a wholesome demand for their services. The anxious father of a family would rely on his pharmacist's judgment of the house he is about to occupy, or take to him for analysis the sample of food he looks upon with suspicion, or the wall-paper he is about to place in his bedroom, or even the many-colored clothes which are to furnish warmth to his children, and which only too often contain poisonous dyes. The pharmacist who will do practical sanitary work, and proclaims it or has obtained a diploma to that effect, will not alone profit by his new calling, but it will surely also increase the confidence of the patrons of his pharmacy, and there augment his legitimate trade in a manner that will amply repay him for the time he has bestowed on the study of sanitary matters. Not alone this, but the day may, under such circumstances, not be far off when every county, city, or village, will appoint from amongst their pharmacists, as the proper persons to select from, their sanitary inspectors for the various districts. We appeal to pharmacists and our pharmaceutical contemporaries to maturely consider this subject, and give it the attention which in our mind it deserves.

SEE TABLES OF CONTENTS.

We would ask all who receive sample copies of this journal to look carefully over the contents of previous numbers (published in this number) that they may see how much valuable material they will secure if they commence their subscriptions from last July.

DR. SHAKESPEARE'S REPORT ON CHOLERA.

Dr. Shakespeare prefers that his report shall not be published until it is complete. We will then commence its publication (about March) and give our readers about fifty pages monthly.

OUR STATE BOARD OF HEALTH.

We take the following most pertinent remarks from the *Medical and Surgical Reporter:* "The physicians of Pennsylvania possess a most potent influence; they little realize how great their influence really is. Let the reader stop and reflect for a minute how important he is to his patient who may happen to be a member of the legislature; we do not mean how important from a purely *political* aspect, for, God save the doctor from politics!—but how much weight his voice will carry.

The State Board of Health *must* ask the next legislature for an increased appropriation. It now has $5,000 per year. Out of this the Secretary receives $2,000 for his annual salary—thus leaving $3,000 for traveling-expenses, and scientific, or, indeed, all other work of the Board. That this is simply ridiculous, no one need be told. We were ten years getting such a Board; now that we have it, let us make it effective. It has only been in existence for eighteen months, yet it has done good work; give it money and it will do much better.

In a word, the physicians of this State should organize themselves into a committee of one to urge upon the members-elect of the legislature the importance of a largely-increased appropriation to this most *vital* Board. We do not mean $10,000 or $15,000; this Board ought to have at least $100,000 per year. Then would we see the Keystone State truly the national *Keystone* of Sanitation. The *little* State of Mississippi gives its State Board of Health $45,000 per year. Ought not this great and wealthy State to be ashamed of itself, if it does not liberally discount its small and comparatively poor neighbor?"

WHAT THE STATE OWES TO THE PEOPLE AND THE PEOPLE TO THE STATE.

In our issue for January we will commence the publication of this address, which was delivered by the late Honorable Erastus Brooks before the State Board of Health of Pennsylvania at its meeting last May. This paper will be full of interest to all right-thinking persons.

LAWS RELATING TO HEALTH.

A Compendium of the Laws of the State of Pennsylvania for the protection of the public health, systematically arranged and indexed by the Committee on Sanitary Legislation, Rules and Regulations of the State Board of Health and Vital Statistics of the Commonwealth of Pennsylvania has been prepared by Dr. David Engelman, of Easton (a member of the State Board of Health), and will be published in this journal, commencing with the issue for January. The great importance of such a publication cannot be overestimated; from it the tenant and the landlord will learn their rights; the citizen generally will know what he has a right to look for from the authorities, and the authorities will know what they must expect from the citizen.

THE SUBSTITUTION OF DRUGS.

It is well known to those who know anything worth speaking about, that druggists or pharmacists, or call them what you will, (we mean those who sell drugs and compound, or oftentimes *dumbfound* physicians' prescriptions) are in the habit of substituting some *cheaper* article for that which has been ordered. He who does so is criminally wrong, of course, but in addition to this, he is a *fool*, because, by so doing, he hurts his own business. If a physician prescribes a certain drug and the druggist substitutes some article that is cheaper and often times less active, the patient fails to derive the expected benefit, the doctor is disappointed, he *knows* that he *ought* to have had a certain result and he blames the druggist. For instance, we believe that Jensen's Pepsin is a most excellent preparation; suppose it is ordered, and some cheaper pepsin is substituted; the result looked for is not accomplished; the druggist is blamed and justly so. This is but one case to illustrate the point. Make up your prescriptions as *ordered* and you will have a much clearer conscience.

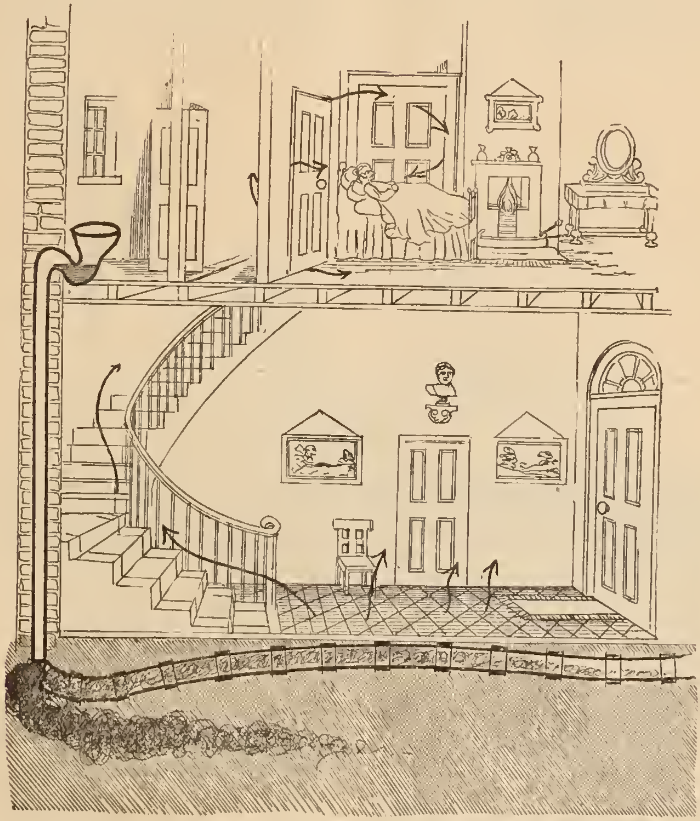
WONDERS OF DIET.

The Roman soldiers, who built such wonderful roads and carried such a weight of armor and luggage that would crush the average farm hand, lived on coarse brown bread and sour wine. They were temperate in diet, regular and constant in exercise. The Spanish peasant works every day and dances half the night, yet eats only his onion, black bread, and watermelon. The Smyrna porter eats only a little fruit and some olives. He eats no beef, pork, or mutton, yet he walks off with his 800 pounds. The coolie, fed on rice, is more active and can endure more than the negro fed on fat meat. The heavy work of the world is not done by the men who eat the greatest quantity. The fastest and longest winded horse is not the biggest eater. Moderation in diet seems to be the prerequisite for endurance.

Notes and Comments.

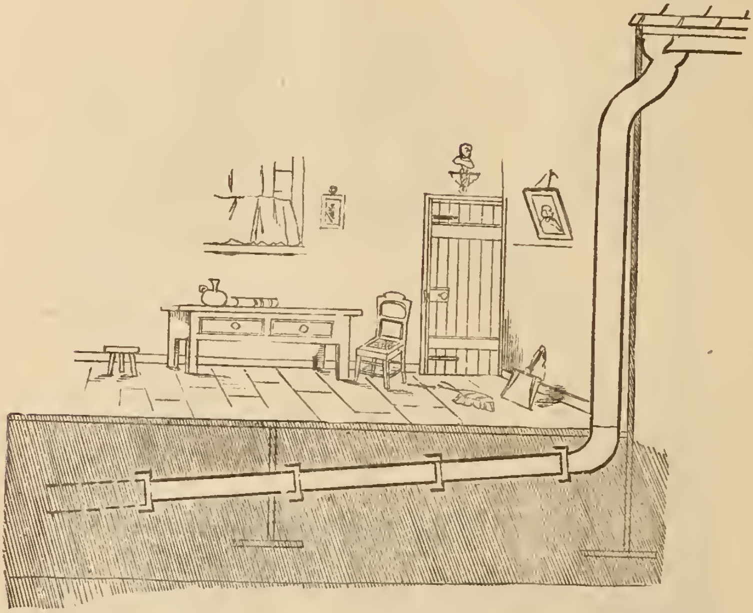
ONE OF THE DANGERS OF CHILD-BIRTH.

The woman in bed in this picture had a rich husband. The first heir was about to arrive and a most experienced nurse was engaged. Everything went well, so far as the labor was concerned, but the woman failed to recover promptly. She was not exactly sick, neither was she well. She would wake in the morning with a headache, her appetite was poor and she looked pale and languid. After this condition of affairs had gone on for some time, a friend, with a hygienic turn of mind, suggested that something might be wrong with the drains. An examination revealed what our drawing illustrates. The plumber had endeavored to accomplish the impossible feat of making sewage flow against gravity; in addition to which there was a break at the junction of the soil and drain pipes. The ground under the house was saturated with sewage, and the poor woman, when in a peculiarly susceptible condition, was obliged to breathe this foul atmosphere. The remedy is obvious.



AN ERROR HALF CORRECTED.

The gentleman, when informed of the error in his drainage (as depicted in our last illustration) at once set about to remedy it. He had the point of junction of the soil and drain pipes made secure and he had the proper fall given to his drain pipe. BUT, the plumber laid the pipes with the flanges down hill, when they should have been just the reverse. MORAL—Do not trust *blindly* to your plumber.



AMERICAN PUBLIC HEALTH ASSOCIATION.

The concluding session of the American Public Health Association was held on October 8. The first business after routine was the election of officers, which resulted as follows:

President—Dr. Geo. M. Sternberg, surgeon U. S. A.

Vice-Presidents—Prof. Charles N. Hewitt, secretary State Board of Health, Minnesota; Prof. C. A. Lindsley, Yale College, Connecticut.

Secretary—Dr. Irving A. Watson, of Concord, N. H., reëlected.

Treasurer—Dr. J. Berrien Lindsley, of Nashville, Tenn., reëlected.

The Executive Committee is composed of the above officers, Dr. Henry B. Baker, of Lansing, Mich.; Prof. Hosmer A. Johnson, of Chicago, Ill.; Dr. Joseph H. Holt, of New Orleans, La.; Prof. George H. Rohé, of Baltimore, Md.; Col. D. P. Hadden, of Memphis, Tenn.; and the following Vice-Presidents: Dr. H. P. Walcott, of Cambridge, Mass.; Dr. Stephen Smith, of New York city; Dr. Jos. M. Turner, of Washington, D. C.; Dr. Edwin M. Snow, of Providence, R. I.; Dr. John H. Rauch, of Springfield, Ill.; Prof. James L. Cabell, University of Virginia, Va.; Dr. John S. Billings, U. S. A.; Prof. Robt. C. Kedzie, of Lansing, Mich.; Dr. Ezra M. Hunt, of Trenton, N. J.; Dr. Albert L. Gihon, U. S. N.; Dr. James E. Reeves, of Wheeling, W. Va.

Memphis, Tenn., was the place selected for holding the convention of 1887, and the association adjourned.

ALWAYS HAVE A PLAN OF YOUR PLUMBING.

When you have reason to suspect some fault with your drainage, you send for your plumber, and generally grumble because he makes so much dirt and consumes so much time, for which you have to pay. If, when building a house, you have made a diagram of all the pipes, and keep it for future reference, it will not be necessary to tear up the whole cellar in order that a defective drain may be discovered.

HOW TO INCREASE THE BODILY WEIGHT.

In a little pamphlet entitled "Brief Practical Directions for Exercising and Using the Developing Apparatus in the Pratt Gymnasium, Amherst College," we find the following:

Exercise all the muscles moderately for a short time daily. Do not become greatly fatigued. Take a short spray bath, with moderately cool water, two or three times a week. Avoid excessive mental exercise, study or worry. Do things quietly and moderately and not in a rush. Lie down and rest, or sleep for half an hour after dinner and supper if possible. Do not study soon after eating. Practice deep breathing and holding the breath, to exercise the diaphragm and stomach. Retire early at night and sleep as long as possible. If sleepless from brain work, eat a few graham crackers before retiring, to draw the excess of blood from the brain to the stomach. Then bathe the head and back of neck with cold water, and if necessary the feet also and rub them briskly till red and dry. Eat slowly and freely, thoroughly chewing the food. Choose especially the following varieties of food. If any of them causes indigestion take less of that one. Sugars, syrups, and all sweet things. Fats, fat meats, and soups. Sweet vegetables of all kinds. Corn starch, tapioca, and all puddings, cakes, candies, and nuts, tea, coffee, chocolate, and cocoa, diluted with much milk and well sweetened. Cream and new milk. Butter, eggs, and condiments. All other foods may be indulged in to the extent of the inclination. Chewing gum daily before eating and between meals increases the flow of saliva, and so aids the digestion of fat-making foods. It also indirectly stimulates the secretion of the digestive juices of the stomach."

REFUSE DISPOSAL.

The more active local sanitary authorities in London are devoting their attention to the study of the best method of disposal of refuse. Whitechapel, we understand, has determined to depend upon cremation. Newington depends upon another method, and recently their process was examined by a deputation from the Kensington vestry. The Newington process has as its object the utilization to their fullest extent of all house dust and road sweepings. The ashes are screened, and the "breeze" subsequently used by brickmakers and builders; while the vegetable refuse and road sweepings are converted into manure, known to Kentish farmers as Newington mixture. Cremation here is limited to the destruction of other matter for which no use can be found. This is essentially the usual practice in the London dustyard, and no one can have witnessed the sight which these yards present without having feelings of sympathy aroused for the unfortunate people who are compelled by the necessity of obtaining a livelihood to engage in this occupation. Men and women stand with sieves in their hands, into which are thrown quantities of the outputs of the dustbins; the fine dust rapidly passes through the sieve, forming a heap which eventually reaches the waists of the workers, while the large matter which remains in the sieve is sorted and distributed on other heaps. It is said that the cost of removal is lessened to an important extent by the money paid for the manure and breeze; the sum should, indeed, be large to compensate for the degradation of the human beings who are compelled to follow such an occupation. It is expected that the Kensington vestry will issue a report upon the whole question of dusting and slopping. It will be interesting to note the view they take of these proceedings.

CONTAGIOUS CONSUMPTION.

At a recent meeting of the Conseil d' Hygiène (Paris) a committee was appointed, including Professor Trélat and Proust, and Dr. Dujardin-Beaumetz, who were charged to make researches to see what could be done to stop the development of pulmonary consumption, the following resolutions were adopted:

1. The most active agent in the transmission of this disease resides in the expectorated matter.

2. Care must be taken not to allow this expectoration to be thrown on the ground nor on linen, where it may be transformed into dangerous dust.

3. We recommend, therefore, that patients be instructed to spit into utensils containing sawdust, and that these are to be emptied and washed once a day, and their contents are to be burnt.

4. Any room which has been occupied by a consumptive person should, after his death, be disinfected with sulphur before it is again occupied, and all linen must be steamed.

BOVINE VACCINATION.

We were confronted recently by the sister of a man living in the West, who had (the man) a baby who should be vaccinated, but he knew not what to do, because he could not procure human virus above suspicion, and he was afraid of bovine virus. Our advice was for him to write to John Wyeth & Bro., of this city, for some points. We gave this advice because we have inspected Wyeth's vaccine farm, and we feel sure that there can be no better bovine virus than is there produced; and we feel also sure that, as a rule, bovine is more reliable, for many reasons, than human virus.

THE HABITS OF A CENTENARIAN.

W. H. Larrabee, in the *Popular Science Monthly* for November, thus describes the great French chemist, "Chevreul at a Hundred."

"M. Chevreul has a considerable library at the museum, which has been regularly increased by the accession of valuable books which his son, a bibliophilist like himself, has helped him to find. His grand life has been engaged in thought, and concentrated upon the studies upon which such useful discoveries have resulted. He has kept himself in good condition and happy by work and moderation. His wife, who has now been dead for more than twenty years, attended to his comforts with all the devotion which such superior minds are able to invoke. His only son, a retired magistrate, lives at Dijon. The illustrious old man lives, therefore, alone, with his books for companions, by the aid of which he is able to converse with his brethren, the great ones of mankind, the Newtons and the Galileos. When not among his books, he is at his laboratory in the Gobelins, where he goes on with his experiments with a dexterity still quite juvenile.

M. Chevreul possesses a large fortune, which is augmented from year to year by the rewards of his scientific labors. His life therefore passes along placidly, enlivened by the pleasure of seeing the closing years of his career emphasized by ovations to his merit. He has witnessed the birth of all the scientific discoveries of our century, and has beheld the marvelous spectacle of the development of modern chemistry.

M. Chevreul is tall, and bears to this day an erect body. Of elegant manners and incomparable affability, he rarely fails to receive you with a smile. His head is a very fine one, with a broad and massive forehead, shaded with white locks. He is a man of wit as well as of genius, Recently, when engaging a new preparator for his laboratory, he said to him: "You must have a good deal of courage to take this place; I have killed four preparators already." We recollect, says M. Tissandier, seeing him at a ball in the Elysée, at midnight of a winter night, fresh and lively, surrounded by ladies whom he was gayly entertaining, with an exquisite and charming grace.

M. Chevreul is very sober. He drinks nothing but water and beer, except that, by the special request of Minister Goblet, he for the first time in his life departed from his abstinence to drink a glass of champagne in response to the sentiment, "*Vive la France!*" at his century banquet; and to his temperance, with his robust constitution and his prudent, regular, and industrious life, he doubtless owes his survival to so high an age.

BERMUDA AS A HEALTH RESORT.

It often happens that the man who has been hard at work, feels that he requires a vacation; but he cannot spare much time, and he does not know where to go at little expense of time and money. We would suggest to such a short trip to Bermuda. Ten days and $150 will give six days at sea, four days on land, and an abundance of health, that will cause him who reads and acts upon this advice to thank us for the suggestion. If you want particulars write to A. E. Outerbridge & Co., 51 Broadway, New York City.

A POSSIBLE DANGER TO HEALTH FROM EARTHQUAKES.

The Sanitary Engineer points out a possible danger in the water-supply of those southern cities that have been affected by the earthquake, which it may be well to bear in mind, and that is, that some of the water-pipes may have been displaced or cracked by some of the earth tremors. At some points these water-pipes pass through sewers in which case, if broken and empty of water, a risk is incurred that would not exist if they were under pressure, and while there is little probability that there will be any dangerous leakage, its possibility should be recognized and guarded against. There is also some risk from injury to sewers, and from loosening of badly made joints in house-plumbing. A thorough house-to-house inspection from a sanitary point of view is a highly desirable thing for Charleston, and should be carried out within the next three or four months. All these things are, however, no doubt well understood by the sanitary authorities and physicians of Charleston, and will be attended to in due time.

EXPENDITURE FOR MEDICAL AND SANITARY SERVICE IN RUSSIA.

Many of the provincial governments in Russia have evinced of late years an increasing desire to attend to the healths and sanitary condition of their respective populations. In the thirty-four provinces into which "provincial institutions," or local governments, have been introduced, the sum expended on medical and sanitary matters has gradually increased from $1,000,000 in 1871 to $4,250,000 in 1883. The sums expended for this purpose are about 25 per cent. greater than those expended on education; but it must be remembered that all the population are benefited by the sanitary service, while only children require instruction. In seventeen of these provinces the mortality has diminished; in eight it has remained stationary, while in seven it has increased. It is instructive to compare the sums expended for medical purposes in the provinces with and without local institutions. In the former class of provinces the sum expended per head varied in the different governments from four to eighteen cents, while in the latter the maximum was four cents and the minimum one half cent.

Correspondence.

VENTILATION OF SEWERS.

EDITOR ANNALS OF HYGIENE:

I have been impressed with the idea that much of the sewer-gas emitted from our city inlets, might be almost destroyed by having large vent pipes introduced into the sewer, and then carried up alongside of a high building, passing sufficiently above the apex to obviate any danger from foul gases. During severe storms or freshets it is no unusual thing to perceive in our dwellings an odor not only prejudicial to health, but dangerous. Sewer-gas has been so imprisoned in our streets, that heavy iron man-holes have been blown off, and the street rent asunder. These large vent-pipes could be carried up and properly hooded in almost every block, and in this way I think much of the sickness due to the decomposition of organic matter contained therein, might be averted. It would also be the means of flushing the sewers at times with fresh air, and thus purifying the nauseous odors emitted from every inlet in our city.

LUCIEN MOSS.

1631 Chestnut street, Phila., Pa.

WHOLE No. 2. AUGUST 15, 1884. VOL. I., No. 2.

THE
Annals of Hygiene.

A Monthly Journal devoted to the Fostering of Preventive Science and the Preservation of Health.

PRICE, $1.00 PER YEAR. SINGLE NUMBERS, 10 CENTS.

Edited by JOSEPH F. EDWARDS, M. D.,
(ASSISTANT EDITOR MEDICAL AND SURGICAL REPORTER.)

CONTENTS:

The Physician a Popular Educator . . 25
Betting and Disease 29
The Prevention of Summer Complaint . 31
Cholera and Cowardice 32
Suggestions Regarding Cholera for the Use of the Public 33
Precautions Against Cholera 34
Hope as a Remedy Against Disease . . 35
Suicide and Sleeplessness 36
Tea a Cause of Dyspepsia 37
A New Compound Disinfectant 38
Forbidden Coloring Materials in France 38
Cider and Stone in the Bladder 39
The Hot Water Cure 39
Prevention Better than Cure 40
Communication of Scarlet Fever through a Letter 40
Military Drill in Schools 41
Evidence of a Growing Interest in Hygiene 41
Street Confectionery 42
Zinc in Drinking Water 42
Rules for Bathers 43
The Analysis of Cucumbers. 43
Sanitary Forest Culture 44
Infanticide in France 44
What One Cholera Stool May Do . . . 44
Causes and Cure of Corpulence. 45
Preserved Meats. 45
A Pleasant Tonic for Warm Weather . .45
Artificial Food for Children. 46
Ice-water and Raw Tomatoes in Germany 46
Ocean-going Steamers as Disseminators of Disease. 46
How to Limit the Spread of Scarlet Fever. 47
An Epidemic of Pneumonia Explained.47
Reducing Weight 47
A Home-made Fountain Pen 47
To Remove Tattoo Marks. 48
Rules of Short Life. 48
The Cows of New York. 48
Hutchison's Physiology and Hygiene . 48
Items.. 48

Office at No. 115 South 7th St., Philadelphia, Pa.

Published by Inquirer Printing Co., Lancaster, Pa.

Announcement of Premiums.

The Editor has started "THE ANNALS OF HYGIENE" with the view of popularizing the knowledge that is so valuable, of instructing the people about the means at their command to enable them to avoid disease and preserve their health.

In order that every person interested in the subject may be induced to constitute himself an agent for the dissemination of this knowledge, the editor has concluded to offer the following valuable premiums.

FOR EVERY 1000 SUBSCRIBERS.

1. A handsome Horse, Buggy, and Harness. The Horse to be under nine years of age, and guaranteed safe and sound in every particular. The Buggy and Harness to be made by reliable manufacturers. Or,
2. A handsome new Piano.

FOR EVERY 500 SUBSCRIBERS.

1. A handsome Horse, under nine years of age, guaranteed safe and sound. Or,
2. A handsome second-hand Piano in good condition.

FOR EVERY 400 SUBSCRIBERS.

A handsome Buggy.

FOR EVERY 300 SUBSCRIBERS.

A handsome suit of Parlor Furniture, upholstered with the finest raw silk.

FOR EVERY 200 SUBSCRIBERS.

1. A handsome Hunting-case Gold Watch. Or,
2. A fine Sewing Machine, with all the latest improvements. Or,
3. A handsome Parlor Organ.

FOR EVERY 100 SUBSCRIBERS.

1. A handsome Silver Watch. Or,
2. A neat suit of Bed-room Furniture made of Walnut.

FOR EVERY 50 SUBSCRIBERS.

ANY ONE OF THE FOLLOWING:

1. A handsome suit of Bed-room Furniture made of Ash.
2. A Lawn Mower.
3. A handsome Trunk.
4. A decorated China Breakfast Service.
5. A decorated China Dinner Service.

(CONTINUED ON THIRD PAGE OF COVER.)

See Advertisements of Parke, Davis & Co., on pages 2 & 4 of Cover.

WHOLE No. 3. SEPTEMBER 15, 1884. VOL. I., No. 3.

THE
Annals of Hygiene.

A Monthly Journal devoted to the Fostering
of Preventive Science and the Preservation of Health.

PRICE, $1.00 PER YEAR. SINGLE NUMBERS, 10 CENTS.

Edited by JOSEPH F. EDWARDS, M. D.,
(ASSISTANT EDITOR MEDICAL AND SURGICAL REPORTER.)

CONTENTS:

Cholera Precautions in France 49
Sanitary Precautions to Prevent the Spreading of Infectious Diseases. . . 52
The National Value of Public Health . 54
Diet for Persons Suffering with Diabetes 56
How to Render Cheese Digestible. . . 58
The Rearing of Hand-Fed Infants . . . 59
Home Gymnastics 61
Butter Substitutes 62
Don't 63
The Prophylaxis of Tuberculosis . . . 63
Historic Droughts 64
Diseases Produced by Drinking Water Flowing from a Graveyard. 65
Tobacco and Its Adulterations 66
The Ranch Cure for Consumptives . . 66
The Water Supply of Paris 67
Tinnitus Aurium Due to the Excessive Use of Tobacco. 68
The Mortality of Married Life. 68
The Dry Method of Sewage Disposal in Canton (China) 69
The Cause of Death among Children—Burial Clubs. 69
Fusel Oil in Candy 70
Uncovering at Funerals. 70
Water for Infants 70
Late Marriages. 71
Poisonous Cod-fish 71
The Public Interest in Hygiene 72
Pains in the Head During the Growing Period 72

Office at No. 115 South 7th St., Philadelphia, Pa.

Published by Inquirer Printing Co., Lancaster, Pa.

ERGOT.

Of the physiological properties or therapeutical applications of ergot it has long been unnecessary further to speak. No drug has been more systematically studied by chemist or physiologist, and there is none whose exact place has been more definitely fixed in the medical practitioner's materia medica. Until within very recent date the pharmacy of the drug was, however, strangely neglected. Ergot is particularly a drug whose medicinal activity is affected by conditions of climate, soil, season of gathering and the various contingencies liable to interfere with the successful gathering, drying, etc., of the crude material. It is well known that the chemical constituents on which its virtue depends are liable to extreme variations with the conditions indicated. Notwithstanding this fact, however, the pharmacist continued to manufacture the usual galenical preparations, after the usual formulæ. The consequence was that the activity of these preparations was liable to variation from year to year, and few practitioners but have been disappointed in results confidently looked for, through this cause. With a view to remedying this great evil, especially great through the liability of the failure of the preparation at times when the life of a patient depends on its prompt action, we several years ago succeeded, after the necessary scientific experimentation, in giving to the profession a constant preparation, under the name of

LIQUOR ERGOTÆ PURIFICATUS.

This preparation was made to conform at all times to a fixed standard, and contained an unvarying percentage of those chemical principles on which physiological study has demonstrated the oxytocic properties of the drug to depend. The drug is also known to contain certain principles of a more or less poisonous nature. These were carefully eliminated from the finished preparation. The success of this venture at a preparation of ergot which should be scientifically correct, encouraged us to make similar preparations of vegetable drugs, to which we, for convenience, gave the generic name of "NORMAL LIQUIDS," and the name of our LIQUOR ERGOTÆ PURIFICATUS was made to conform to this nomenclature. We therefore, now place it on the market as

NORMAL LIQUID ERGOT

and would request that physicians, in prescribing it, do specify it by this name. It is as constant in its strength as quinine, morphine, or any other alkaloidal drug. We can confidently recommend its employment.

Our list contains also the Fluid Extract, the Solid Extract, the Powdered Extract, Ergotin (Bonjean's), Ergotin (purified) and Solution of Sclerotic Acid. We have space only to call attention to our

ERGOTIN (PURIFIED).

This preparation represents in concentrated form the activity of the drug, freed from inert and other positively irritating constituents. We believe it to be greatly superior to any other preparation in the market for hypodermic use. Its concentrated form adapts it to the pocket case, where it may be thus constantly at hand in case of emergency.

For literature fully descriptive of the above, address

PARKE, DAVIS & CO.,

Manufacturing Chemists, DETROIT, Michigan.

NEW YORK: 60 Maiden Lane and 21 Liberty St.

• Please mention THE ANNALS OF HYGIENE in ordering or purchasing.

See Advertisements of Parke, Davis & Co., on pages 2 & 4 of Cover.

WHOLE No. 4. OCTOBER 15, 1884. VOL. I., No. 4.

THE

Annals of Hygiene.

A Monthly Journal devoted to the Fostering of Preventive Science and the Preservation of Health.

PRICE, $1.00 PER YEAR. SINGLE NUMBERS, 10 CENTS.

Edited by JOSEPH F. EDWARDS, M. D.,
(ASSISTANT EDITOR MEDICAL AND SURGICAL REPORTER.)

CONTENTS:

Postures in School; Their Influence Upon Physical Development 73
Parasites of Meat and Prepared Flesh-food 76
The Spread of Infection through the Agency of Schools 78
Cholera vs. Filth 80
A Chinese Dinner 81
Mental Worry 83
Von Pettenkofer on the Poisonous Effects of Coal Gas 84
The Means of Making Malarious Localities More Healthy 85
Civilization and the Teeth 87
Why Cholera is Endemic in India . . 88
Sanitary Faults of School Houses in Indiana 90
Victor Hugo on Sewage Irrigation . . . 90
Sulpher and Malaria 91
Buried Alive 92
The Prevention of Diphtheria 93
Damp Cellars 93
Health-Giving Dishes 94

Office at No. 115 South 7th St., Philadelphia, Pa.

Published by Inquirer Printing Co., Lancaster, Pa.

FELLOWS' HYPO-PHOS-PHITES

(SYR: HYPOPHOS: COMP: FELLOWS)

Contains **The Essential Elements** to the Animal Organization—Potash and Lime;

The **Oxydizing Agents**—Iron and Manganese;

The **Tonics**—Quinine and Strychnine;

And the **Vitalizing Constituent**—Phosphorus,

Combined in the form of a Syrup, with slight alkaline reaction.

It Differs in Effect from all Others, being pleasant to taste, acceptable to the stomach, and harmless under prolonged use.

It has Sustained a High Reputation in America and England for efficiency in the treatment of Pulmonary Tuberculosis, Chronic Bronchitis, and other affections of the respiratory organs, and is employed also in various nervous and debilitating diseases with success.

Its Curative Properties are largely attributable to Stimulant. Tonic, and Nutritive qualities, whereby the various organic functions are recruited.

In Cases where innervating constitutional treatment is applied, and tonic treatment is desirable, this preparation will be found to act with safety and satisfaction.

Its Action is Prompt; stimulating the appetite and the digestion, it promotes assimilation, and enters directly into the circulation with the food products.

The Prescribed Dose produces a feeling of buoyancy, removing depression or melancholy, and hence is of great value in the treatment of MENTAL AND NERVOUS AFFECTIONS.

From its exerting a double tonic effect and influencing a healthy flow of the secretions, its use is indicated in a wide range of diseases.

Each Bottle of Fellows' Hypophosphites contains 128 Doses.

Prepared by JAMES I. FELLOWS, Chemist,

48 VESEY STREET, NEW YORK.

Circulars and Samples Sent to Physicians on Application.

☞ **SPECIAL TO PHYSICIANS.—ONE** large bottle containing 15 oz. (which usually sells for $1.50) will be sent upon receipt of **Fifty Cents** with the application. This will be applied to the prepayment of Expressage, and will afford an opportunity for a thorough test in Chronic cases of Debility and Nervousness. Express charges prepaid upon all samples, if ANNALS OF HYGIENE is mentioned.

FOR SALE BY ALL DRUGGISTS.

WHOLE No.5. NOVEMBER 15, 1884. VOL. I., No. 5.

THE
Annals of Hygiene.

A Monthly Journal devoted to the Fostering
of Preventive Science and the Preser-
vation of Health.

PRICE, $1.00 PER YEAR. SINGLE NUMBERS, 10 CENTS.

Edited by JOSEPH F. EDWARDS, M. D.,
(ASSISTANT EDITOR MEDICAL AND SURGICAL REPORTER.)

CONTENTS:

The Brain of the School-Child 97
School Hygiene 100
Sanitary Training in Public Schools . 102
Hysteria in Young Children 103
Tenement Reforms 104
Our Modern Juggernaut 105
Disinfectants 106
The Ventilation of Sewers 107
Preventive Medicine for the Autumn . 108
Children with Big Bellies 109
The Value of Human Life 110
The Necessity of Sanitary Reform . . 111
The Cholera in Egypt in 1883 112
Pine Baths 112
A Sanitary School Building 113
Hygienic Regulations of Workshops and Dwellings 113
Malaria is Subject to Correction . . . 114
Governor Carroll on the "Glory of Hygiene" 115
Health of Children in Schools . . . 115
Influence of Forests on Public Health 115
Swill Milk 116
How to Make a Good Salad 116
Sewing Machine Work 117
Tuberculous Meat and Milk 117
The Lighting of Schools 117
Alcohol vs. Cholera 118
Sea-Coast Hospitals for Scrofulous Children 118
Ice in the Sick Room 118
New Houses 119
Trapping Drain Pipes 119
The Cholera and the King 119
Mouth and Nose Breathing 120
Strewing Poisoned Grain 120
Cotton-Seed Oil in Cookery 120
Musty Houses 120

Office at No. 115 South 7th St., Philadelphia, Pa.

Published by Inquirer Printing Co., Lancaster, Pa.

FELLOWS' HYPO-PHOS-PHITES

(SYR: HYPOPHOS: COMP: FELLOWS)

Contains **The Essential Elements** to the Animal Organization—Potash and Lime;

The **Oxydizing Agents**—Iron and Manganese;
The **Tonics**—Quinine and Strychnine;
And the **Vitalizing Constituent**—Phosphorus,
Combined in the form of a Syrup, with slight alkaline reaction.

It Differs in Effect from all Others, being pleasant to taste, acceptable to the stomach, and harmless under prolonged use.

It has Sustained a High Reputation in America and England for efficiency in the treatment of Pulmonary Tuberculosis, Chronic Bronchitis, and other affections of the respiratory organs, and is employed also in various nervous and debilitating diseases with success.

Its Curative Properties are largely attributable to Stimulant, Tonic, and Nutritive qualities, whereby the various organic functions are recruited.

In Cases where innervating constitutional treatment is applied, and tonic treatment is desirable, this preparation will be found to act with safety and satisfaction.

Its Action is Prompt; stimulating the appetite and the digestion, it promotes assimilation, and enters directly into the circulation with the food products.

The Prescribed Dose produces a feeling of buoyancy, removing depression or melancholy, and hence is of great value in the treatment of MENTAL AND NERVOUS AFFECTIONS.

From its exerting a double tonic effect and influencing a healthy flow of the secretions, its use is indicated in a wide range of diseases.

Each Bottle of Fellows' Hypophosphites contains 128 Doses.

Prepared by **JAMES I. FELLOWS**, Chemist,

48 VESEY STREET, NEW YORK.

Circulars and Samples Sent to Physicians on Application.

☞ SPECIAL TO PHYSICIANS.—ONE large bottle containing 15 oz. (which usually sells for $1.50) will be sent upon receipt of **Fifty Cents** with the application. This will be applied to the prepayment of Expressage, and will afford an opportunity for a thorough test in Chronic cases of Debility and Nervousness. Express charges prepaid upon all samples, if ANNALS OF HYGIENE is mentioned.

FOR SALE BY ALL DRUGGISTS.

WHOLE No. 6. DECEMBER 15, 1884. VOL. I., No. 6.

13

THE
Annals of Hygiene.

A Monthly Journal devoted to the Fostering of Preventive Science and the Preservation of Health.

PRICE, $1.00 PER YEAR. SINGLE NUMBERS, 10 CENTS.

Edited by JOSEPH F. EDWARDS, M. D.,

(ASSISTANT EDITOR MEDICAL AND SURGICAL REPORTER.)

CONTENTS:

An Address on Health in England . . 121
Influence of Diet on Headache 126
Some Diseases which may be Merely Symptoms of the Effects of Poisoning by Sewer Gas. 130
Jewish Hygiene 133
Cemeteries and Water-Supply of Panama 136
Hygiene in Relation to the Private Family 138
A Factor in the Prevention of Disease 139
The Effects of Bicycle Riding on the Young 140
Laying Down a Rule of Life 142
Public Laundries and Baths 143
To Test the Purity of the Air in a Room 144

PUBLISHED AND ENTERED AS SECOND CLASS MAIL MATTER AT LANCASTER, PA.
OFFICE AT No. 115 SOUTH SEVENTH ST., PHILADELPHIA.

FELLOWS' HYPO-PHOS-PHITES

(SYR: HYPOPHOS: COMP: FELLOWS)

Contains **The Essential Elements** to the Animal Organization—Potash and Lime;

The **Oxydizing Agents**—Iron and Manganese;
The **Tonics**—Quinine and Strychnine;
And the **Vitalizing Constituent**—Phosphorus,
Combined in the form of a Syrup, with slight alkaline reaction.

It Differs in Effect from all Others, being pleasant to taste, acceptable to the stomach, and harmless under prolonged use.

It has Sustained a High Reputation in America and England for efficiency in the treatment of Pulmonary Tuberculosis, Chronic Bronchitis, and other affections of the respiratory organs, and is employed also in various nervous and debilitating diseases with success.

Its Curative Properties are largely attributable to Stimulant, Tonic, and Nutritive qualities, whereby the various organic functions are recruited.

In Cases where innervating constitutional treatment is applied, and tonic treatment is desirable, this preparation will be found to act with safety and satisfaction.

Its Action is Prompt; stimulating the appetite and the digestion, it promotes assimilation, and enters directly into the circulation with the food products.

The Prescribed Dose produces a feeling of buoyancy, removing depression or melancholy, and hence is of great value in the treatment of MENTAL AND NERVOUS AFFECTIONS.

From its exerting a double tonic effect and influencing a healthy flow of the secretions, its use is indicated in a wide range of diseases.

Each Bottle of Fellows' Hypophosphites contains 128 Doses.

Prepared by **JAMES I. FELLOWS,** Chemist,

48 VESEY STREET, NEW YORK.

Circulars and Samples Sent to Physicians on Application.

☞ **SPECIAL TO PHYSICIANS.—ONE** large bottle containing 15 oz. (which usually sells for $1.50) will be sent upon receipt of **Fifty Cents** with the application. This will be applied to the prepayment of Expressage, and will afford an opportunity for a thorough test in Chronic cases of Debility and Nervousness. Express charges prepaid upon all samples, if ANNALS OF HYGIENE is mentioned.

FOR SALE BY ALL DRUGGISTS.

WHOLE NO. 7. JULY 1, 1886. VOL. I, No. 7.

THE
Annals of Hygiene.

(The Official Organ of the State Board of Health of Pennsylvania.)

A Monthly Journal devoted to the Fostering of Preventive Science and the Preservation of Health.

LIBRARY
COLLEGE OF PHYSICIANS
OF PHILADELPHIA
9/13/86

PRICE, $2.00 PER YEAR, SINGLE NUMBER, 20 CENTS.

Edited by JOSEPH F. EDWARDS, M. D.

(ASSISTANT EDITOR MEDICAL AND SURGICAL REPORTER.)

CONTENTS:

Heredity and other Peculiarities Affecting Health and Longevity . . 145
The Artificial Feeding of Infants. . 152
Economic Sanitation 162
Sewering and Draining Cities . . . 169
The Financial Aspect of Sanitation. 173
Eleven Months. 176
Our Southern Visitors 177
To Our Subscribers. 178
Why? 178
Hygiene is Manly 178
Sewers for the "Blind" 179
Queries and Replies 179
Small-pox: A Remarkable Fact . . 179
"The John Welsh Concourse" vs. "The John Welsh Museum of Hygiene 180
The "Hessian" Sanitarian 182
Hygiene in Schools in Hungary. . . 182
Massachusetts State Board of Health 183
The Sanitary Condition of Tonquin. 183
Preservation of Public Health . . . 183
Poisonous Gloves 184

PUBLISHED AND ENTERED AS SECOND-CLASS MAIL MATTER AT LANCASTER, PA.
OFFICE AT No. 224 SOUTH SIXTEENTH ST., PHILADELPHIA, PA.

FOR DYSPEPSIA,

Mental and Physical Exhaustion,
Nervousness, Weakened Energy.
INDIGESTION, ETC.

COUNT RUMFORD.

Horsford's
ACID PHOSPHATE.

A liquid preparation of the phosphates and phosphoric acid.

Recommended by physicians.

It makes a delicious drink.

Invigorating and strengthening. Pamphlet free.

For sale by all dealers.

Rumford Chemical Works, Providence, R. I.

☞ **BEWARE OF IMITATIONS.**

WHOLE No. 8. AUGUST 1, 1886. VOL. I, No. 8.

THE Annals of Hygiene.

(The Official Organ of the State Board of Health of Pennsylvania.)

A Monthly Journal devoted to the Fostering of Preventive Science and the Preservation of Health.

PRICE, $2.00 PER YEAR, SINGLE NUMBER, 20 CENTS.

LIBRA
9/13/86

Edited by JOSEPH F. EDWARDS, M. D.
(ASSISTANT EDITOR MEDICAL AND SURGICAL REPORTER.)

CONTENTS:

COMMUNICATIONS.

"On the Sanitary Significance of Sporadic Typhoid Fever," by Pemberton Dudley, M. D., of Philadelphia, Member State Board of Health of Pennsylvania 186
"A Paper Concerning the Progress of Sanitary Science in the State of Mississippi During the Past Ten Years," by W. F. Hyer, M. D., of Holly Springs, Mississippi, Member Mississippi State Board of Health...............................189
"The Disposal of Human Excreta by Fire," by W. S. Ross, M. D., of Madisonville, Ky., Member American Public Health Association.......194
"Physic-tippling and Medicine-bibbing: A Warning Against Intemperance in the Use of Drugs," by Frank Woodbury, M. D., of Philadelphia, Professor of Therapeutics, Materia Medica and Clinical Medicine in the Medico Chirurgical College.......................................195

EDITORIAL.

A WORD OF EXPLANATION.......................199
TO OUR SUBSCRIBERS...........................199
THE PENNSYLVANIA STATE SANITARY CONVENTION. 199
TO THE MEMBERS OF THE AMERICAN PUBLIC HEALTH ASSOCIATION 201

NOTES AND COMMENTS.

Carpet Beating In Suburban Gardens............198
Yellow Fever in South America.................201
Cool August Nights—A Polish Immigrant and Small-Pox—Pus in the Milk—Small-Pox *vs.* Vaccination—Poisonous Honey—Garbage Cremation in Toronto............................202
The Climate of Dublin—Sanitary Inspectors—Green Corn—Steam in Sewers—Periodical Variations in Atmospheric Bacteria................203
A New Way of Purifying Sewage—Baby-Coaches—Effect of Mental Over-work upon the Teeth—Pound Wise, Penny Foolish—Cuvier on Tight Lacing... 204
A Tramp Ship—The Sanitation of Calcutta—The Hygiene of Theatres..........................205
Blindness Due to Decayed Teeth—Scarlet Fever Communicated by Clothing—Lord Wolseley on Large Heads and Narrow Chests—Chronic Tea Poisoning 206
Provision Against Infectious Disease—Isolation in Scarlet Fever—Damp Beds.................207
Epidemics and Their Cousinship to Violence and Passion—An Irishman on Cremation—Modern Adulterations in Food—To Disinfect a Room..208
Diseased Eggs—Underground Dwellings in Edinburgh—Ice Cream Poisoning.................209
Headache in School Children—Disinfection of Railway Cattle Trucks.........................210
Prevention of Typhoid Fever—Public Health in Tasmania—Stale Eggs.........................211
Pustula Maligna from Diseased Veal—Sanitary Statistics of Italy...........................212
Local Sanitary Organizations—Educational Overpressure of Young Children............ 213
Cows and Scarlatina—Compulsory Swimming in Schools...214
The Dangers of Dust—Illustrations of the Origin of Certain Zymotic Diseases in an Isolated House 215
Sanitary Condition of the Isthmus of Panama—Sanitation in Workshops and Factories........216
On Suction of Sewer Gases in Service-pipes Conveying Drinking Water—A Fertile Causation of Enteric Fever.............. 217
Death-rate and Sanitation in Russia—The Value of Sanitary Progress in Liverpool.............218
Health and Irritability..... 219
Sudden Deaths after Severe Exertion............220
The Sanitary Convention—Executive Office of the State Board of Health—Yellow Fever in Rio De Janeiro. 223
Arsenic in Fabrics and Wall Paper in St. Petersburg—The Heat and Rainfall of India........224

QUERIES AND REPLIES.

A So-called Sewer in York, Pa..................224

PUBLISHED AND ENTERED AS SECOND-CLASS MAIL MATTER AT LANCASTER, PA.
OFFICE AT No. 224 SOUTH SIXTEENTH ST., PHILADELPHIA, PA.

FOR DYSPEPSIA,
Mental and Physical Exhaustion,
Nervousness, Weakened Energy.
INDIGESTION, ETC.

COUNT RUMFORD.

Horsford's
ACID PHOSPHATE.

A liquid preparation of the phosphates and phosphoric acid.

Recommended by physicians.

It makes a delicious drink.

Invigorating and strengthening. Pamphlet free.

For sale by all dealers.

Rumford Chemical Works, Providence, R. I.

☞ **BEWARE OF IMITATIONS.**

SEE THIRD PAGE OF COVER.

WHOLE No. 9. SEPTEMBER 1, 1886. VOL. I, No. 9.

THE Annals of Hygiene.

(The Official Organ of the State Board of Health of Pennsylvania.)

A Monthly Journal devoted to the Fostering of Preventive Science and the Preservation of Health.

PRICE, $2.00 PER YEAR, SINGLE NUMBER, 20 CENTS.

Edited by JOSEPH F. EDWARDS, M. D.

(ASSISTANT EDITOR MEDICAL AND SURGICAL REPORTER.)

9/13/86

CONTENTS:

COMMUNICATIONS.

Overwork and Sanitation in the Public Schools of Philadelphia, with Remarks on the Influence of Overwork in the Production of Nervous Diseases and Insanity, by Charles K. Mills, M. D., of Philadelphia, President of the American Neurological Association, etc 225
The Necessity of Physical Education, (Illustrated) by Carl H. Horsch, M. D., of Dover, New Hampshire, Member New Hampshire State Board of Health 233
"Heating and Ventilation of Public School Buildings," as illustrated by the system introduced into the new High School Building at Chester, (Illustrated) by D. W. Jefferis, M. D., of Chester, Pa 240
"Defective Vision in School Children," by Peter D. Keyser, M. D., of Philadelphia, Professor of Ophthalmology in the Medico-Chirurgical College of Philadelphia 243
"Triplets"—The History of Three Simultaneous Epidemics of Typhoid Fever, by Benjamin Lee, A. M., M. D., of Philadelphia, Secretary State Board of Health of Pennsylvania 246

EDITORIAL.

Queries and Replies 249
Back Numbers 249
Club Rates 249
Architectural Defects in School Buildings 249
Damp Cellars 250
The Hygiene of Marriage 250
The Presence of Sewer Gas 251
Prevention of Consumption 253

NOTES AND COMMENTS.

Cholera Mortality in 1885—Typhoid Fever in the United States—Public Disinfection Institute—William H. Vanderbilt and his Appetite—Milk Poisoning at Long Branch—Lord Palmerston's Inkstand—Typhoid Fever Mortality 255
Colic and Drinking Water—The Dairies of Paris—Disposal of Human Refuse—To Preserve Raw Meat—School Rooms—A Sum in Hygienic Arithmetic—Flies as Sanitary Inspectors 256
Sleeping with Head Low—Corporal Punishment in Schools—Poisoning by Asparagus—Children's Holiday Colonies in Warsaw 257
Exercise and no Exercise, or Gladstone *vs* Manning—Pains in the Head during the Growing Period—Unwholesome Canned Peas—Sanitation in Japan 258
Tilden, Hancock, Grant and McClellan—The Dairies of St. Louis—Cataract in Glass Workers... 259
The Fatal Privy Vault—How soon after Measles may a Child attend School?—Marching on to Health 260
Best Cows to Supply Milk for Infants—Hygiene of Vision—The Lighting of Schools........... 261
Health of Children in Schools—Large Death-rate among Negroes—How to Cool a Cellar....... 262
Military Drill in Schools—A Hygienic School Desk 263
Headache and Neuralgia in School Teachers... 264

PUBLISHED AND ENTERED AS SECOND-CLASS MAIL MATTER AT LANCASTER, PA.

OFFICE AT No. 224 SOUTH SIXTEENTH ST., PHILADELPHIA, PA.

FOR DYSPEPSIA,
Mental and Physical Exhaustion,
Nervousness, Weakened Energy.
INDIGESTION, ETC.

COUNT RUMFORD

Horsford's
ACID PHOSPHATE.

A liquid preparation of the phosphates and phosphoric acid.

Recommended by physicians.

It makes a delicious drink.

Invigorating and strengthening. Pamphlet free.

For sale by all dealers.

Rumford Chemical Works, Providence, R. I.

☞ **BEWARE OF IMITATIONS.**

DUPLEX $3.00 **Electric Belt,** Suspensory, etc., for Kidneys, Pain Nervous and Weak. True Curatives pay Agents. Circular free.

FLETCHER & CO., Mfg. Electricians. Cleveland, Ohio.

SEE PAGE 298 FOR ANNOUNCEMENT OF
DR. E. O. SHAKESPEARE'S REPORT ON CHOLERA.

WHOLE No. 10. OCTOBER 1, 1886. VOL. I, No. 10.

THE Annals of Hygiene.

The Official Organ of the State Board of Health of Pennsylvania.

A Monthly Journal devoted to the Fostering of Preventive Science and the Preservation of Health.

PRICE, $2.00 PER YEAR. SINGLE NUMBER 20 CENTS.

EDITED BY JOSEPH F. EDWARDS, A.M., M.D.
(ASSISTANT EDITOR MEDICAL AND SURGICAL REPORTER.)

LIBRARY COLLEGE OF PHYSICIANS OF PHILADELPHIA
10/13/86

☞SEE NOTICE OF BACK NUMBERS ON ADVERTISING PAGE VIII.☜

CONTENTS:

COMMUNICATIONS.

An Epidemic of Diphtheria Traced to its Source. By Benjamin Lee, A.M., M.D., of Philadelphia, Secretary of the State Board of Health ot Pennsylvania 265
Cases of Milk Poisoning, with Remarks on Tyrotoxicon. By William K. Newton, M.D., Sanitary Inspector and Analyst to the State Board of Health of New Jersey, and Shippen Wallace, Analyst to the State Board of Health of New Jersey....271
Overwork and Sanitation in the Public Schools of Philadelphia, with Remarks on the Influence of Overwork in the Production of Nervous Diseases and Insanity. By Charles K. Mills, M.D., of Philadelphia, President of the American Neurological Association, etc....274
The Doctor as a Sanitarian. By Thos. W. Harvey, M.D., of Orange, N. J...278
The Glasgow Epidemic. By Thos. J. B. Rhoads, M.D., of Pottstown, Pa.......282
Remarks on the Prevention of Scrivener's Palsy or Writer's Cramp. By Frank Woodbury, M.D., of Philadelphia, Professor of Therapeutics, Materia Medica, and Clinical Medicine in the Medico-Chirurgical College (Illustrated)....285
The Hygiene of Old Age. By H. C. Wood, M.D., of Philadelphia, Professor of Materia Medica and Therapeutics in the University of Pennsylvania 290
The Hygiene of Nature or the Relation of Immunity from Disease to Natural Selection. By Romaine J. Curtiss, M.D., of Joliet, Ill., Professor of Hygiene in the College of Physicians and Surgeons, Chicago, Ill....293

EDITORIALS.

Dr. Shakespeare's Report on Cholera....298
The Physician as a Sanitarian....298
Our Illustrations....298

NOTES AND COMMENTS.

Why Mr. Manning is not Secretary of the Treasury (Illustrated)....299
The Contamination of Wells (Illustrated)....300
Dyspepsia....301
How Sewer Gas Gets into the House (Illustrated)....301
Medical and Surgical Directory of the United States....303
Why Typhoid Fever Prevails in the Fall (Illustrated)....303

PUBLISHED AND ENTERED AS SECOND-CLASS MAIL MATTER AT PHILADA., PA.
OFFICE AT No. 224 SOUTH SIXTEENTH ST., PHILADELPHIA, PA.
PATTERSON & WHITE, PRS., PHILA.

SEE PAGE 298 FOR ANNOUNCEMENT OF
DR. E. O. SHAKESPEARE'S REPORT ON CHOLERA.

COUNT RUMFORD

Horsford's ACID PHOSPHATE,

[LIQUID.]

For Dyspepsia, Mental and Physical Exhaustion, Diminished Vitality, Nervousness, Etc.

Prepared according to the Directions of Prof. E. N. Horsford, of Cambridge, Mass.

A preparation of the phosphates of lime, magnesia, potash and iron, with phosphoric acid in such form as to be readily assimilated by the system.

Universally recommended and prescribed by physicians of all schools.
Its action will harmonize with such stimulants as are necessary to take.
It is the best tonic known, furnishing sustenance to both brain and body.

INVIGORATING, STRENGTHENING,
HEALTHFUL, REFRESHING.

☞ Prices reasonable. Pamphlet giving further particulars mailed free.

Manufactured by the RUMFORD CHEMICAL WORKS, Providence, R. I.

BEWARE OF IMITATIONS.

Remington Standard Type-Writer.

I most strongly recommend the Type-Writer to all persons who write for considerable periods of time, more especially to the short-sighted, or to those who have any kind of trouble about their eyes.

"Before I possessed a Type Writer, my own muscles were often so tired by writing that I had seriously thought of abandoning the practice, lest the strain thrown upon them might in time impair the qualities of the hand as an instrument for surgical purposes, but since I have had a Type-Writer these feelings of fatigue are unknown, not only on account of the division of labor between several fingers, but also because the work is not done by the small muscles of the fingers at all, but by the large ones of the forearm, which are capable of much greater and more sustained exertion.

"ROBERT BRUDENELL CARTER, M.D., F.R.C.S."

Send for Illustrated Pamphlet. Please mention this Journal in ordering same or goods.

WYCKOFF, SEAMANS & BENEDICT,
339 Broadway, N. Y., or 715 Chestnut St., Philadelphia.

INTERESTING TO PHYSICIANS.

Positive Medication!

COMPRISING

Alkatrits, Alkametric Granules, Alkadermic Pellets and Alkassayed Fluids.

New Forms of Medication in which the Potent Isolated Principles, (Alkaloids, etc.) of Drugs may be Prescribed or Administered with Perfect Precision.

A Thirty-page pamphlet and samples will be mailed FREE on application.

FREDERICK STEARNS & CO.,
MANUFACTURING PHARMACISTS.
DETROIT, MICH., U. S. A.

WHOLE No. 11. NOVEMBER 1, 1886. VOL. I, No. 11.

THE Annals of Hygiene.

The Official Organ of the State Board of Health of Pennsylvania.

A Monthly Journal devoted to the Fostering of Preventive Science and the Preservation of Health.

PRICE, $2.00 PER YEAR. SINGLE NUMBER, 20 CENTS

EDITED BY JOSEPH F. EDWARDS, A.M., M.D.,
(ASSISTANT EDITOR MEDICAL AND SURGICAL REPORTER.)

11/16

CONTENTS:

COMMUNICATIONS.

Overwork and Sanitation in the Public Schools of Philadelphia, with Remarks on the Influence of Overwork in the Production of Nervous Diseases and Insanity. By Charles K. Mills, M.D. President of the American Neurological Association, etc..................... ...305
The Hygiene of the Mouth. By Charles J. Essig, M.D., D.D.S., of Philadelphia, Professor of Mechanical Dentistry and Metallurgy in the University of Pennsylvania..............................311
The Hygiene of Nature or the Relation of Immunity from Disease to Natural Selection. By Romaine J. Curtiss, M.D., of Joliet, Ill., Professor of Hygiene in the College of Physicians and Surgeons, of Chicago, Illinois....313
Sanitary Conference at Pittsburgh, Pa..317
On the Relation Between the Water Supply and the Prevalence of Cholera in Spain in 1885..............................319
A Korean Epidemic—Something About Asiatic Cholera as it is seen in its Native Home......................................322
The Epidemic at Morganza, Pa...........324
Discussion of Prof. H. C. Wood's Paper "On The Hygiene of Old Age." By Laurence Turnbull, M.D., Ph.G., Aural Surgeon to the Jefferson Medical College Hospital, late Honorary President of the Otological Subsection of the British Medical Association at Cork, and Author of a Work on Hygiene of the Ear, etc., etc........326
Inter-State Notification in Infectious and Contagious Diseases..................328
Hygiene of the Sick. A Lecture by Wm. B. Atkinson, M.A., M.D., Professor of Pediatrics and Sanitary Science in the Medico-Chirurgical College of Philadelphia...328

EDITORIALS.

Is Sewer Gas Poisonous......................332
Back Numbers........ 332
Queries and Replies...............................332
Our Illustrations..................................332
Curious Source of Lead Poisoning.......332

NOTES AND COMMENTS.

Acute Poisoning from Sardines............331
Disinfection of Bilge-Water...............331
Why Mr. L——r and his Wife Died of Typhoid Fever (illustrated)..............333
Rules of Short Life..........................333
Proposed Public Health Legislation in France....................... 334
Ocean-Going Steamers as Disseminators of Disease....................................334
Queries and Replies..........................334
That Rascally Plumber (illustrated).....335
How to Grow Strong............. 336
How to Limit the Spread of Scarlet Fever...336
Renting Infected Houses....................336
What One Cholera Stool May Do.........337
Musty Houses....................................337
Sir Andrew Clarke's Definition of Health 337
Strewing Poisoned Grain....................337
A Sanitary School Building.................338
What the Abuse of Tea Leads to.........338
Uncovering at Funerals 339
Water for Infants...............................339
The Public Interest in Hygiene...........339
Vaccination in West Africa................340
Prevention of Cook's Sore Eyes...........340
Dissemination of Disease....................340
Sanitary Defects at a Summer Resort (illustrated).....................................341
The Pig Nuisance (illustrated)............342
Suicides Among Children...................343
Human Sardines in Berlin..................343
No Wonder the Meat Won't Keep, the Beer Turns Sour and the Milk Disagrees (illustrated)...........................344
A Fatal Bath......................................344

PUBLISHED AND ENTERED AS SECOND-CLASS MAIL MATTER AT PHILADA, PA.

OFFICE AT No. 224 SOUTH SIXTEENTH ST., PHILADELPHIA, PA.

PATTERSON & WHITE, PRS., PHILA.

FOR DYSPEPSIA,
Mental and Physical Exhaustion,
Nervousness, Weakened Energy,
INDIGESTION, ETC.,

COUNT RUMFORD.

Horsford's
ACID PHOSPHATE.

A liquid preparation of the phosphates and phosphoric acid.

Recommended by physicians.

It makes a delicious drink.

Invigorating and strengthening. Pamphlets free.

For sale by all dealers.

Rumford Chemical Works, Providence, R. I.

☞BEWARE OF IMITATIONS.

As soon as completed, Dr. E. O. Shakespeare's Official Report on Cholera will be published in this journal. It will make a volume of about 600 pages. We will publish about 50 pages monthly, and will so number and arrange these pages that, if it is desired, this report can be SEPARATED from the journal and bound in a separate volume.

CONTENTS FOR OCTOBER.

COMMUNICATIONS.

An Epidemic of Diphtheria, Traced to its Source. By Benjamin Lee, A.M., M.D., of Philadelphia, Secretary of the State Board of Health of Pennsylvania.........265

Cases of Milk Poisoning, with Remarks on Tyrotoxicon. By William K. Newton, M.D., Sanitary Inspector and Analyst to the State Board of Health of New Jersey, and Shippen Wallace, Analyst to the State Board of Health of New Jersey....271

Overwork and Sanitation in the Public Schools of Philadelphia, with Remarks on the Influence of Overwork in the Production of Nervous Diseases and Insanity. By Charles K. Mills, M.D., of Philadelphia, President of the American Neurological Association, etc........................274

The Doctor as a Sanitarian. By Thos. W. Harvey, M.D., of Orange, N.J............278

The Glasgow Epidemic. By Thos. J. B. Rhoads, M. D., of Pottstown, Pa.........282

Remarks on the Prevention of Scrivener's Palsy, or Writer's Cramp. By Frank Woodbury, M.D., of Philadelphia, Professor of Therapeutics, Materia Medica, and Clinical Medicine in the Medico-Chirurgical College (Illustrated)................285

The Hygiene of Old Age. By H. C. Wood, M.D., of Philadelphia, Professor of Materia Medica and Therapeutics in the University of Pennsylvania.................290

The Hygiene of Nature or the Relation of Immunity from Disease to Natural Selection. By Romaine J. Curtiss, M.D., of Joliet, Ill., Professor of Hygiene in the College of Physicians and Surgeons, Chicago, Ill..293

EDITORIALS.

Dr. Shakespeare's Report on Cholera.........298
The Physician as a Sanitarian...................298
Our Illustrations.......................................298

NOTES AND COMMENTS.

Why Mr. Manning is not Secretary of the Treasury (Illustrated).............................299

The Contamination of Wells (Illustrated).300

Dyspepsia..301

How Sewer Gas Gets into the House (Illustrated)...301

Medical and Surgical Directory of the United States...303

Why Typhoid Fever Prevails in the Fall (Illustrated)...303

A PAPER BY THE LATE HON. ERASTUS BROOKS
WILL APPEAR IN OUR NEXT ISSUE. SEE PAGE 380.

WHOLE No. 12. DECEMBER 1, 1886. VOL. I, No. 12.

THE
Annals of Hygiene.

The Official Organ of the State Board of Health of Pennsylvania

A Monthly Journal devoted to the Fostering of Preventive
Science and the Preservation of Health.

PRICE, $2.00 PER YEAR. SINGLE NUMBER, 20 CENTS.

PHILADELPHIA
12/14/86

EDITED BY JOSEPH F. EDWARDS, A.M., M.D.,
(ASSISTANT EDITOR MEDICAL AND SURGICAL REPORTER.)

CONTENTS:

COMMUNICATIONS.

Our Drugs and Medicines. By L. Wolff, M.D., President of the Philadelphia Pharmaceutical Examining Board, Demonstrator of Chemistry Jefferson Medical College, etc.........345
On Continuous Preventive Disinfection of House Drainage. By Henry Hartshorne, of Philadelphia....................350
The Water Supply of Philadelphia. By J. Cheston Morris, M.D., of Philadelphia..356
The Effects of Excesses on the minds of Professional and Business men. By Thos. F. Rumbold, M.D., of St. Louis, Mo..361
State Board of Health of Pennsylvania. Fifth Regular Meeting....................365
A Plea for more Prolonged Isolation in the Management of Scarlet Fever. By W. W. Vinnedge, M.D., of Lafayette Ind..371
The Causation of Pneumonia. By Henry B. Baker, M.D., of Lansing, Mich., Secretary of the Michigan State Board of Health 373

EDITORIALS.

Pharmacists as Sanitarians..................378
See Tables of Contents.......................379
Dr. Shakespeare's Report on Cholera....379
Our State Board of Health.................379
What the State Owes to the People and the People to the State.........................380
Laws Relating to Health.....................380
The Substitution of Drugs..................380
Wonders of Diet.............................380

NOTES AND COMMENTS.

One of the Dangers of Child-Birth (illustrated)..381
An Error Half Corrected (illustrated)...382
American Public Health Association....382
Always Have a Plan of Your Plumbing (illustrated)............................383
How to Increase the Bodily Weight....383
Refuse Disposal..................................384
Contagious Consumption....................384
Bovine Vaccination...........................384
The Habits of a Centenarian..............385
Bermuda as a Health Resort...............385
Expenditure for Medical and Sanitary Service in Russia.......................... 386
A Possible Danger to Health from Earthquakes.......................................386

CORRESPONDENCE.

Ventilation of Sewers.........................386

PUBLISHED AND ENTERED AS SECOND-CLASS MAIL MATTER AT PHILADA, PA.
OFFICE AT No. 224 SOUTH SIXTEENTH ST., PHILADELPHIA, PA.
PATTERSON & WHITE, PRS., PHILA.

DR. SHAKESPEARE'S OFFICIAL REPORT ON CHOLERA
WILL BE PUBLISHED IN THIS JOURNAL. SEE PAGE 379.

FOR DYSPEPSIA,
Mental and Physical Exhaustion,
Nervousness, Weakened Energy,
INDIGESTION, ETC.,

COUNT RUMFORD

Horsford's
ACID PHOSPHATE.

A liquid preparation of the phosphates and phosphoric acid.

Recommended by physicians.

It makes a delicious drink.

Invigorating and strengthening. Pamphlets free.

For sale by all dealers.

Rumford Chemical Works, Providence, R. I.

☞BEWARE OF IMITATIONS.

One of the following articles
SENT FREE
on receipt of five cents in stamps for postage:

An Elegant Desk Tool,
A sample of
HORLICK'S FOOD for INFANTS,
OR
HORLICK'S DRY EXT. of MALT.

The above preparations are giving best of satisfaction and will pay you to keep in stock. See to your supply before you order next time from your dealer.

SATISFACTION GUARANTEED.

HORLICK'S FOOD CO.,
RACINE, WIS.

P. S.—Our literature sent free for distribution, with your card printed on.

INTERESTING.
Positive Medication!

COMPRISING
Alkatrits, Alkametric Granules, Alkadermic Pellets and Alkassayed Fluids.

NEW FORMS OF MEDICATION IN WHICH THE POTENT ISOLATED PRINCIPLES (ALKALOIDS, ETC.) OF DRUGS MAY BE PRESCRIBED OR ADMINISTERED WITH PERFECT PRECISION.

The following are a few only of the important and rare agents to be found in our new preparations

ADONIDIN
The new cardiac tonic.

AGARICIN
The new anti-hydrotic.

DUBOISINE
The new mydriatic.

ASPIDOSPERMINE
The new antiphlogistic and antiperiodic.

CONIINE HYDROCHLORATE
The new muscular paralytic.

HYOSCINE HYDROBROMATE
The new hypnotic and mydriatic.

PILOCARPINE HYDROCHLORATE
The new sialagogue and diaphoretic.

SPARTEINE SULPHATE
The new cardiac tonic.

Colchicine, Bryonin, Emetine, Homatropine, Napelline, Convallamarin, Codeine sulphate, Erythrophleine muriate, Muscarine sulphate, Narceine, Cannabin tannate, Daturine sulphate, Eserine salicylate, Sanguinarine sulphate, Picrotoxin.

A forty-page pamphlet containing the latest information on physiological and therapeutic properties of the various rare alkaloids, glucosides, etc., will be mailed free on application.

FREDERICK STEARNS & CO., Mfg. Pharmacists, Detroit, Mich., U. S. A.